An Examination of the Biology and Distribution of Pacific Hake, Walleye Pollock, and Spiny Dogfish in the Strait of Georgia. *R/V G.B. REED*, May 25-June 18, 1976

W. Shaw, G. A. McFarlane, and R. J. Beamish

Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

March 1983

Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 1697

Canadian Manuscript Report of Fisheries and Aquatic Sciences

These reports contain scientific and technical information that represents an important contribution to existing knowledge but which for some reason may not be appropriate for primary scientific (i.e. *Journal*) publication. They differ from Technical Reports in terms of subject scope and potential audience: Manuscript Reports deal primarily with national or regional problems and distribution is generally restricted to institutions or individuals located in particular regions of Canada. No restriction is placed on subject matter and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, ocean sciences, and aquatic environments relevant to Canada.

Manuscript Reports may be cited as full publications. The correct citation appears above the abstract of each report. Each report will be abstracted by *Aquatic Sciences and Fisheries Abstracts* and will be indexed annually in the Department's index to scientific and technical publications.

Numbers 1-900 in this series were issued as Manuscript Reports (Biological Series) of the Biological Board of Canada, and subsequent to 1937 when the name of the Board was changed by Act of Parliament, as Manuscript Reports (Biological Series) of the Fisheries Research Board of Canada. Numbers 901-1425 were issued as Manuscript Reports of the Fisheries Research Board of Canada. Numbers 1426-1550 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Manuscript Reports. The current series name was changed with report number 1551.

Details on the availability of Manuscript Reports in hard copy may be obtained from the issuing establishment indicated on the front cover.

Rapport manuscrit canadien des sciences halieutiques et aquatiques

Ces rapports contiennent des renseignements scientifiques et techniques qui constituent une contribution importante aux connaissances actuelles mais qui, pour une raison ou pour une autre, ne semblent pas appropriés pour la publication dans un journal scientifique. Ils se distinguent des Rapports techniques par la portée du sujet et le lecteur visé; en effet, ils s'attachent principalement à des problèmes d'ordre national ou régional et la distribution en est généralement limitée aux organismes et aux personnes de régions particulières du Canada. Il n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques du Ministère des Pêches et des Océans, notamment gestion des pêches; techniques et développement, sciences océaniques et environnements aquatiques, au Canada.

Les Manuscrits peuvent être considérés comme des publications complètes. Le titre exact paraît au haut du résumé de chaque rapport, qui sera publié dans la revue *Aquatic Sciences and Fisheries Abstracts* et qui figuera dans l'index annuel des publications scientifiques et techniques du Ministère.

Les numéros de 1 à 900 de cette série ont été publiés à titre de manuscrits (Série biologique) de l'Office de biologie du Canada, et après le changement de la désignation de cet organisme par décret du Parlement, en 1937, ont été classés en tant que manuscrits (Série biologique) de l'Office des recherches sur les pêcheries du Canada. Les numéros allant de 901 à 1425 ont été publiés à titre de manuscrits de l'Office des recherches sur les pêcheries du Canada. Les numéros 1426 à 1550 ont été publiés à titre de Rapport manuscrits du Service des pêches et de la mer, Ministère des Pêches et de l'Environnement. Le nom de la série a été changé à partir du rapport numéro 1551.

La page couverture porte le nom de l'établissement auteur où l'on peut se procurer les rapports sous couverture cartonnée.

Canadian Manuscript Report of
Fisheries and Aquatic Sciences No. 1697

March 1983

AN EXAMINATION OF THE BIOLOGY AND DISTRIBUTION OF PACIFIC HAKE, WALLEYE POLLOCK AND SPINY DOGFISH IN THE STRAIT OF GEORGIA. R/V G.B. REED, MAY 25-JUNE 18, 1976

by

W. Shaw, G. A. McFarlane, and R. J. Beamish

Department of Fisheries and Oceans
Fisheries Research Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

(c) Minister of Supply and Services Canada 1983

Cat. No. Fs 97-4/1697 ISSN 0706-6473

ABSTRACT

Shaw, W., G. A. McFarlane, and R. J. Beamish. 1982. An examination of the biology and distribution of Pacific hake, walleye pollock and spiny dogfish in the Strait of Georgia. R/V G.B. REED, May 25-June 18, 1976. Can. MS Rep. Fish. Aquat. Sci. 1697: v + 240 p.

A total of 52 Engel midwater trawl sets were completed. The most abundant species caught was Pacific hake (Merluccius productus) with lesser amounts of walleye pollock (Theragra chalcogramma) and spiny dogfish (Squalus acanthias).

Echograms revealed the presence of a scatter layer between 110 and 165 m in most areas fished. A total of 31 sets were completed within this layer.

Pacific hake ranged in length from 7-75 cm with majority of adults 37-52 cm. Males dominated 55% of all sets and 52% of the total catch. The age composition as determined from otolith sections ranged from 2-20 yr. Principal age groups were 5-13. Growth is rapid to age 4 with a subsequent reduction in growth in older fish. Annual total mortality rates for age groups 6-8 and 9-11 for males and females combined was A = 0.87 (Z=2.04) and A = 0.50 (Z=0.69) respectively. Most of the adult hake examined were in the post spawning stages as 71.9% males were recovering and 86.2% females were resting.

Walleye pollock ranged in length from 17-61 cm with majority of fish 35-44 cm. Males dominated 48% of the sets and predominated sets made above the scatter layer. Walleye pollock ranged in age from 2-8 yr. Principal age groups were 3-5. Age 3 pollock with a modal length of 36 cm dominated the catches. Analysis of age-length graphs indicate rapid growth to age 3 with a subsequent reduction in growth in older fish. The annual total mortality rate for age groups 3-8 yr for sexes combined was A = 0.53 (Z=0.76). Majority of the pollock examined were in a resting stage of maturity.

Spiny dogfish were present in minor quantities in all sets and ranged in length 26-123 cm. Two modal length groups were present at 35 and 41 cm. Juvenile dogfish ($\leq$ 60 cm) constituted 89% of the total catch and were found in all depths towed, however, predominating the surface waters. Age results from spine sections indicated that 85% of the dogfish were $\leq$ 10 yr. Age 1+ dogfish was the dominate age class with a modal length of 31.2 cm. The larger, older dogfish were found in deeper waters (150 m). Annual growth increment for age 2+ dogfish was 3.3 cm and for older dogfish (age 3+ to 11+), 1.6 cm. Analysis of the catch curve indicate an annual natural mortality rate of A = 0.38 (Z=0.48) for the age range 1-4 yr.

Key words: Pacific hake, walleye pollock, spiny dogfish, biology, Strait of Georgia.

RESUME

Shaw, W., G. A. McFarlane, and R. J. Beamish. 1982. An examination of the biology and distribution of Pacific hake, walleye pollock and spiny dogfish in the Strait of Georgia. R/V G.B. REED, May 25-June 18, 1976. Can. MS Rep. Fish. Aquat. Sci. 1697: v + 240 p.

Des merlus du Pacifique (Merluccius productus), l'espèce la plus abondante, des morues du Pacifique occidental (Theragra chalcogramma) et des aiguillats communs (Squalus acanthias) ont été capturés au cours de 52 mouillages de chalut mésopélagique de type Engel.

La lecture des échogrammes a révélé la présence d'une couche de dispersion entre 100 m et 165 m dans la plupart des zones exploitées. Au total, 31 mouillages ont été réalisés dans cette couche.

La longueur des merlus du Pacifique variait de 7 à 75 cm; la majorité des adultes mesuraient de 37 à 52 cm. Les mâles, plus abondants dans 55% des mouillages, constituaient 52% de la prise totale. L'âge, déterminé à l'aide de coupes d'otolithes, variait de 2 à 20 ans; le groupe principal était constitué de poissons âgés de 5 à 13 ans. La croissance, rapide jusqu'à l'âge de 4 ans, diminue chez les poissons plus âgés. La mortalité annuelle totale pour les groupes d'âge de 6 à 8 ans et de 9 à 11 ans (mâles et femelles) s'élevait à A=0,87 (Z=2,04) et A=0,50 (Z=0,69) respectivement. La majorité des merlus examinés étaient au stade d'après-fraie: 71,9% des mâles reprenaient leurs forces et 86,2% des femelles étaient au repos.

La longueur des morues du Pacifique occidental variait de 17 à 61 cm et la majorité mesurait de 35 à 44 cm. Plus abondants dans 48% des mouillages, les mâles étaient aussi plus fréquemment présents dans les prises effectuées au-dessus dee la couche de dispersion. L'âge variait de 2 à 8 ans; le groupe principal était âgé de 3 à 5 ans. Les morues âgées de 3 ans dont la longueur modale s'élevait à 36 cm dominaient dans les prises. L'analyse des graphiques de la longueur en fonction de l'âge révèle une croissance rapide jusqu'à 3 ans et une diminution de la croissance chez les poissons plus âgés. Le taux annuel de mortalité totale pour les poissons âgés de 3 à 8 ans (sexes combinés) s'élevait à A=0,53 (Z=0,76). La majorité des morues observées étaient au stade du repos.

De petites quantités d'aiguillats communs, dont la longueur variait de 26 à 123 cm, ont été capturées dans tous les mouillages. Deux groupes modaux de longueur, soit 35 et 41 cm, étaient présents. Les aiguillats juvéniles ($\leq$60 cm) constituaient 89% de la prise totale et ont été pêchés à toutes les profondeurs échantillonnées quoiqu'ils étaient plus abondants dans les eaux superficielles. Selon les coupes d'épines, 85% des aiguillats étaient âgés de 10 ans ou moins. La classe d'âge la plus importante était 1+ et la longueur modale à cet âge s'élevait à 31,2 cm. Les aiguillats plus âgés et de plus grande taille habitaient les eaux plus profondes (150 m). Les

zones de croissance annuelle pour les aiguillats âgés de 2+ ans et les poissons plus âgés (de 3+ à 11+ ans) totalisaient 3,3 cm et 1,6 cm respectivement. L'analyse de la courbe des prises révèle un taux annuel de mortalité naturelle de A=0,38 (Z=0,48) chez les poissons âgés de 1 à 4 ans.

Mots-clés: merlu du Pacifique, morue du Pacifique occidental, aiguillat commun, biologie, détroit de Géorgie.

INTRODUCTION

The purpose of the May 25-June 18, 1976 cruise was to examine the composition and distribution of midwater fishes, particularly Pacific hake (Merluccius productus), walleye pollock (Theragra chalcogramma) and spiny dogfish (Squalus acanthias), and to examine the post-spawning biology of hake and pollock in the Strait of Georgia.

A secondary purpose was to study the horizontal and vertical distribution of juvenile Pacific hake and walleye pollock in the Strait of Georgia.

This report describes the survey design and summarizes the results of catch compositions and biological analyses. Publication was delayed because of staff changes.

METHODS

The vessel used during the survey period was the R/V G. B. REED. All tows were made using an Engel 434 midwater trawl, equipped with an Elac model LAZ 17 headrope transducer and a 2.0 cm (0.8 in) mesh codend liner.

Set locations (Fig. 1) were selected on the basis of fish density as determined from an echo-sounder survey of the Strait of Georgia completed prior to fishing. Tows were made to identify species composition of targets, primarily hake, pollock, and dogfish, in the midwater.

In addition, a series of plankton midwater trawls (Fig. 2) was made during the evening hours using a 2-m Isaac Kidd plankton trawl. Tows were made at various depths targetting upon plankton layers which were determined from an echo-sounder survey completed prior to each tow.

Temperature profiles to a depth of 275 m were recorded at the end of selected trawl hauls using a bathythermograph (BT).

Each midwater trawl catch was sorted by species individually into 55-L (12 gal) galvanized tubs and weighed using a platform balance to the nearest kilogram (kg). The major species, hake, pollock, and dogfish were either sampled in their entirety or a random sample of tubs was selected for analysis.

Hake and pollock were measured for fork length and sexed. Samples of hake were selected from the total catch of certain tows by randomly selecting tubs full of fish and sampling for gonad condition, stomach contents and paired otoliths for age determination. The total catch of pollock from

selected tows was sampled for gonad condition, and stomach contents; and left pectoral fin was sampled for age determination. Age determination procedures for otoliths and pectoral fin rays is outlined in Beamish (1979) and (1981), respectively.

Hake and pollock body weights and selected pollock ovaries were weighed to the nearest gram using a Digimetric 30 DTI top loading balance equipped with a digital integrator.

All dogfish caught were measured for total length, from the tip of the snout to the tip of the upper lobe of the caudal fin when depressed in a line horizontal with the body, and sexed. Dogfish from selected tows were sampled for gonad condition and stomach contents. Spines from the second dorsal fin were collected for age determination. The method of ageing spines is described in Ketchen (1975) except that all ages were calculated from birth and not from conception.

Incidental catches of brown catshark were sampled for total length, while other fish species were measured for fork length. Gonad conditions and stomach contents were recorded when time permitted.

The total catch from each Isaac-Kidd midwater ichthyoplankton trawl was sorted and all fish species were identified, counted and measured for fork length. All invertebrates were identified, if possible, and catch estimated by volume (cc).

At the request of other investigations, samples of hake pituitary glands and dogfish rectal glands were collected.

RESULTS AND DISCUSSION

GENERAL CRUISE SUMMARY

During May 25-30, an echo-sounder survey was conducted along a series of tracklines to locate concentrations of fish in the Strait of Georgia prior to fishing. A total of 52 midwater tows were completed from May 31-June 18 (Fig. 1). The set locations ranged from the Mitlenatch Island area (tow nos. 9-16) to Active Pass (tow no. 46), and two tows (no. 23 and 24) were made in Pryce Channel (Fig. 1). Detailed records of the set locations and vertical temperature profiles for selected stations arepresented in Appendix Tables 1 and 2, respectively.

The results of the echo-sounder survey completed prior to fishing indicated a "scatter"[a] layer which varied with area and depth. A "spotting"[b] layer of varied density ranged in depth from 90-128 m (49-70 fath). A light (homogenous) scatter layer started at approximately 110 m (60 fath) and increased in density to 165 m (90 fath). This layer either remained dense or decreased in density with depth to the bottom. All but 21 sets were completed at depths within the scatter layer. The remaining sets were on specific targets either above or below the scatter layer.

A total of 28 species of fish were captured during the survey (Appendix Table 3). A list of the common and scientific names of the species caught is presented in Appendix Table 4.

The most abundant species caught during the survey was hake. Walleye pollock and spiny dogfish were common. Northern lampfish, brown catshark, Pacific herring, sockeye salmon and northern smoothtongue were also present. Other fish species caught amounted to less than 50 individuals in the total sets.

The mean catch rate of hake, pollock, and dogfish during the survey was 688 kg/hr, 78 kg/hr and 26 kg/hr, respectively. The catch rates for hake averaged 830 kg/hr above the scatter layer (Fig. 3) and 610 kg/hr within and below the scatter layer (Fig. 4). The largest catches were made above the scatter layer (tows 20, 25, 35, 38) off Halibut Bank and west Texada Island area resulting in an average catch rate of 3,138 kg/hr. These tows were targetted, at depths of 90-110 m (49-60 fath) upon dense schools of fish appearing as heavy spotting on the echogram.

The catch rates for pollock averaged 127 kg/hr above the scatter layer (Fig. 5) and 55 kg/hr below the scatter layer (Fig. 6). The largest catches for pollock above the scatter layer occurred from Halibut Bank to Sand Heads; and below the scatter layer from Hornby to Lasqueti Island area.

Dogfish catches were low but were fairly uniform above and below the scatter layer throughout the Strait of Georgia. The average catch rate was 29 kg/hr above the scatter layer (Fig. 7) and 22 kg/hr within and below the scatter layer (Fig. 8).

The higher catch rates for the three species examined seemed to be above the scatter layer in the western Strait region, such as off Gabriola Island to south Hornby Island. Relatively high catch rates were also around Montgomery Bank area. This could be an indication that post-spawning movement of hake and pollock from the centrally located spawning ground at Halibut Bank is still occurring.

A summary of catch rates by tow for hake, pollock and dogfish is listed in Table 1.

---

[a]The scatter layer represents a layer of plankton which was observed throughout the Strait of Georgia at depths ranging from 110-165 m (60-90 fath).

[b]The spotting layer represents individual schools of fish which appeared as dense spots on the echogram.

MIDWATER PLANKTON TRAWL

Prior to towing, the area was sounder scouted and target depths were determined from the echogram. To place the net at the targetted depth was difficult as no headrope transducer was used. The method used to approximate the target depth was a 3.5:1 ratio of wire line to net depth (Beamish 1976).

A total of 20 plankton tows were completed during the survey (Fig. 2). Detailed records of the set locations are presented in Appendix Table 5. A total of 16 species of fish and eight species of invertebrates were captured. Species composition by set is in Appendix Table 6 and a list of common and scientific names is in Appendix Table 7.

Five tows were made at depths <35 m (19 fath), and all others between 65-125 m (36-68 fm) with three tows at 210 m (115 fath). A total of 14 fish species were sampled for fork length (Appendix Table 8).

The most abundant fish species caught was northern smoothtongue (Leuroglossus stilbius schmidti) while euphausiids were the most abundant invertebrate captured. Northern lampfish (Stenobrachius leucopsarus), northern smoothtongue, juvenile rockfish (Sebastes sp.) and pollock were present in every tow, as were euphausiids, amphipods and copepods.

A total of 50 northern smoothtongue were identified from five tows ranging in depths from 25-210 m (14-115 fath). The majority were caught off Entrance Island (tow 2) and Mitlenatch Island (tow 14) ranging in depths from 25-70 m (14-38 fath). The fish ranged in length from 30-97 mm (Appendix Table 8). Modal lengths were present at 43 mm and 48 mm. Fish <49 mm comprised 60% of the total catch.

Only one larval hake measuring 35 mm was found in the sets off Halibut Bank at a depth of 70 m (38 fath). A total of 16 larval pollock ranging in fork length from 10-19 mm with one fish at 35 mm were captured in 3 sets from Lasqueti Island to Halibut Bank area in depths between 15-65 m (8-36 fath).

One bigeye lanternfish (Protomyctophum thompsoni) measuring 34 mm was caught off Halibut Bank (set 14) at a depth of 70 m (38 fath). According to Hart (1973) these fish are not common to the Strait of Georgia. This is the third reported specimen of a bigeye lanternfish from the Strait of Georgia. The two previous specimens were captured off Mitlenatch Island at 140 m (76 fath) (Beamish et al. 1976) and in Saanich Inlet (Barraclough and Herlinveaux 1965).

PACIFIC HAKE

Pacific hake were present in 47 of 52 sets made in the Strait of Georgia. A total of 13,257 hake were measured for length and sexed. A summary of the biological samples collected is presented in Table 2.

Male hake accounted for 52% of the total catch and dominated in 55% of all sets. Males predominated (83%) in sets made in and below the scatter layer.

Hake ranged in length from 7-70 cm with the majority being adults from 37-52 cm (Appendix Table 9). From the length frequency distribution three distinct modes were present (Fig. 9). The first modal length at 12 cm ($\bar{X}$=12.4 cm) represent age 1+ hake. Some of these fish were retained in the trawl net due to the smaller meshed liner in the codend. They were present in 61% of the sets of which they contributed 23% of the total catch. Age 1+ hake were distributed in most areas trawled except for Malaspina Strait. A total of 81% were caught within the scatter layer.

The second mode (24 cm) represented age 2+ hake with a modal length of 24 cm ($\bar{X}$=25.0 cm) for males and 25 cm ($\bar{X}$=24.8 cm) for females. They were present in 52% of the sets made throughout the Strait of Georgia of which 74% were caught within the scatter layer.

The final mode (44 cm) represented adult hake which predominated in most of the catches. Adult male modal length was 44 cm ($\bar{X}$=43.1 cm) and 45 cm ($\bar{X}$=44.9 cm) for females. Female hake attained the larger lengths with unusually large hake caught around Mitlenatch Island and off Porlier and Active Pass.

Very few age 3+ hake were present in catches made during this survey. Previous studies (Beamish et al. 1976; Cass et al. 1980) have reported that age 3+ hake are maturing for the first time and segregate from the rest of the population in the Strait of Georgia, hence the absence of these fish is not unusual.

The age composition was determined from 958 paired otoliths collected from sets 35 and 12. Hake ranged in age from 2-20 yr (Tables 3 and 4).

The age-length histograms (Fig. 10) clearly indicated that age 2+ hake at 26 cm can be easily identified from the length frequency distribution. However, hake age 3+ and older were impossible to identify since their lengths overlapped the length frequency of older aged hake which predominated in the samples.

The mean length at age curves for set 35 (Thrasher Rock area) are consistent with those observed in previous studies in the Strait of Georgia (Beamish et al. 1976, 1978; Cass et al. 1978). Growth is rapid to age 4 which subsequently reduces to produce a flattening of the curves for older aged fish (Fig. 9, Table 3). However, hake aged from set 12 (Mitlenatch Island area) produced a growth rate anomalous to set 35. Growth is rapid to age 6 which subsequently reduces after age 8 (Table 4). The mean lengths at age by sex are significantly larger for set 12 than for set 35 ("t" test $P<0.05$). This apparent difference could be an artifact of the sample taken or these larger, older hake could be migrants from a separate stock. To corroborate this, more age samples would be necessary at the time of this survey.

Catch curves were determined from the ages for sets 12 and 35 separately. The presence of four strong year-classes in the age distribution

is obvious in the catch curves (Fig. 11, 12). Strong year-classes are 1970, 1964 and 1959 represented by age 6, 12 and 17 yr, respectively. Only in set 35 is there an additional strong 1972 year-class represented by age 4 fish (Fig. 11). These strong year-classes were detected in the March-April, 1976 survey by Shaw et al. (in prep.) using the same ageing technique described by Beamish (1979).

Annual total mortality estimates (A) were calculated from the right hand descending limb of the catch curve using the method described by Jackson (1939). This method requires the assumption of constant annual recruitment. However, the catch curve (Fig. 11) indicates that annual recruitment is not constant. Tentative mortality rates were estimated from segments of the catch curve. Assuming that age classes 6-8 and 9-11 are representative in the age composition than annual total mortality rates (A) ranged from 0.87 to 0.50 respectively. These estimates are equivalent to estimates of Z=2.04 to 0.69 respectively. The apparent high mortality rates could be caused by strong year-classes in the stock.

Gonad condition was recorded for 659 males and 477 females (Table 5). A description of the maturity codes used is in Table 6. Of the gonads examined 71.9% of the mature males were in a recovery stage (R_c) and 86.2% of the mature females were in a resting stage (Rt). Two percent of the males were immature while 1.9-6.9% of the females were immature. The majority of the immature fish examined were found off the Five Finger area and in Toba Inlet. The length at 50% maturity for male and female hake was 35 cm and 38.5 cm respectively (Fig. 13).

Individual round weights were recorded from 120 males and 179 females. The results of these data produced length-weight relationships for males and females exhibiting different exponential curves (Fig. 14-16). The parameters a and b were estimated and incorporated into the following equation:

$$W = aL^b$$

The length-weight relationships estimated for males, females, and sexes combined are summarized below:

1)	Male	$Wt\ (gm) = 1.866 \times 10^{-1}\ (FL\ (cm))2.0602$	(Fig. 14)
2)	Female	$Wt\ (gm) = 2.70 \times 10^{-2}\ (FL\ (cm))2.5777$	(Fig. 15)
3)	Male plus female	$Wt\ (gm) = 2.60 \times 10^{-2}\ (FL\ (cm))2.585$	(Fig. 16)

These relationships are valid only for the length range of fish sampled because only a portion of the actual size range was present at the time of this survey.

The weight of male and female at the time they are recruited to the fishery during June, using set 35 data is:

Males at age 4	$\bar{X}$ FL = 39.5 cm : wt = 363.3 gm
Females at age 4	$\bar{X}$ FL = 42.1 cm : wt = 415.2 gm

These weight estimates are considered reliable as age 4+ hake predominated in the sample.

A total of 218 hake were examined for stomach contents (Table 7). Approximately 54% of the stomachs were empty or were everted due to the rapid pressure changes upon ascent. For the remainder, Pacific herring was the dominant fish species in the diet by volume (18.2%). Euphausiids were the dominant invertebrate species by volume (70%). The mean stomach content by volume (excluding hake with everted stomachs) was 0.83 cc.

WALLEYE POLLOCK

Walleye pollock were present in 44 of 52 sets in the Strait of Georgia. A total of 3,235 pollock were measured and sexed. A summary of the biological sample collected is listed in Table 8.

Male pollock accounted for 53% of the total catch and dominated 48% of the sets. All sets made above the scatter layer were dominated by males.

Pollock ranged in length from 17-61 cm with the majority of the fish in the 35-44 cm range (Appendix Table 10). The length frequency for each sex was similar after 31 cm with females becoming more abundant after 40 cm (Fig. 17). Pollock $\geq$50 cm accounted for less than 1% of the total catch with females attaining the larger sizes. The modal length for males ranging in length from 29-53 was 37 cm (X=38.7 cm). The modal lengths for females ranging in length from 30-61 cm was 40 cm (X=40.8 cm).

Pectoral fin rays were collected from a total of 436 pollock from sets 8 and 19. The depth at which the sample was taken ranged from 85-102 m (47-56 fath). The pollock ranged in age from 2-8 yr with females attaining the older ages (Table 9, Fig. 18). Two age classes dominated the age composition, age 3+ (50%) and age 4+ (24%) representing the 1973 and 1972 year classes respectively. The 1973 year class (age 3+) also predominated in the January cruise by Cass et al. (1980).

The age-length histograms (Fig. 18) indicate that the length frequency of age 3+ pollock (33-49 cm) overlaps the length distribution of the other age classes. The modal lengths of age 3+ male and female pollock are 36 and 38 cm, and 37 and 39 cm respectively.

The mean length at age curve from sets 8 and 19 indicated that pollock grow quite rapidly (2-3 yr, 34.4 and 37.9 cm, respectively), after which growth tends to slow down with little growth after age 6 at a mean length of 45.3 cm (Fig. 17, Table 9). Females were consistently larger than males by 2-3 cm in mean length after age 3 ("t test" $P \leq 0.05$).

Annual total mortality estimates (A) were calculated from fully recruited (age 3) pollock, represented by the right-hand descending limb of the age frequency distribution (catch curve) in Fig. 19, using the Jackson (1939) method. The estimates of total annual mortality for ages 3-8 from sets 8 and 19 inclusive, for males was A=0.63, females A=0.39 and for males plus females A=0.53. These estimates correspond to the instantaneous rate of mortality (Z) and for males Z=0.99, females Z=0.49 and for males plus females

Z=0.76. These estimates are lower and are a better estimate of mortality than the estimate (A=0.84 or Z=1.83 for sexes combined) calculated for the same period in 1975 by Beamish et al. (1976), because larger, older pollock were available in the age composition at the time of this survey, and did not leave the midwater of the open strait for nearshore areas after spawning as reported in the 1975 survey.

Gonads were examined from 288 males and 248 females from 7 sets (Table 10). A description of the maturity codes used is in Table 11. During this cruise, it was evident that spawning was completed since the majority of the gonads examined for males (99%) and females (98.8%) were in a resting stage. Only 0.3% males and 0.8% females sampled were immature ($I2^{)}$.

Individual body weights were collected from 262 pollock in set no. 8. Plotting these data by individual sex and sexes combined produced exponential curves which differed in their slope (Fig. 20-22). These data can be expressed by the following equation:

$$W = aLb$$

Length weight relationships estimated for male, female and sexes combined are summarized below:

1)	Male	Wt (gm) = 4.0065 (FL (cm)) 1.2852	(Fig. 20)
2)	Female	Wt (gm) = 7.886 x 10^{-1} (FL (cm)) 1.7503	(Fig. 21)
3)	Male plus female	Wt (gm) = 3.467 x 10^{-1} (FL (cm)) 1.958	(Fig. 22)

These estimates are valid for the length range of fish sampled during this cruise.

Female pollock attain a longer length and weigh more than males at the time they become recruited to the fishery in June:

Males	at age 3	$\bar{X}$ FL 37.5 cm	wt 422.4 gm
Females	at age 3	$\bar{X}$ FL 38.7 cm	wt 474.1 gm

These weight estimates are considered reliable as age 3+ pollock predominated in the sample.

Stomach contents were examined from 98 pollock from two sets (Table 12). Three percent of the fish examined had everted stomachs, due to rapid pressure changes upon ascent, while no fish with stomachs intact were empty. The mean stomach content by volume (excluding everted stomachs) was 0.92 cc. Partially digested fish remains (9.2%) was the dominant vertebrate food item. Young hake accounted for 4.6% by volume. The dominant invertebrate food consisted of partially digested plankton (60.9%) with euphausiids accounting for 9.2% by volume.

SPINY DOGFISH

Dogfish were present in 48 of 52 sets. All dogfish caught in the trawl catches were sampled and a summary of the biological samples taken is presented in Table 13.

Dogfish ranged in total length from 26-123 cm of which 49% were males (Appendix Table 11). From the length frequency distribution 89% of the dogfish caught were ≤60 cm (Fig. 23). This distribution was similar to those observed in previous surveys in the same area (Beamish and Smith 1976; Cass et al. 1978, 1980). Identification of individual year-classes from the entire length frequency distribution is difficult, because of overlap in size among age groups. Two modal lengths can be observed from the length frequency distribution (Fig. 23). Separating the length distribution of fish ≤60 cm into five 50-m depth intervals shows separation of the two size groups: small dogfish with modal lengths 29 and 34 cm (40% total biomass) found at <180 m (98 fath) depth; larger dogfish with modal lengths 42-43 cm found at >180 m, (98 fath) with the majority at ≥240 m (131 fath) depths (Fig. 24).

Depth segregation by size class has previously been observed (Beamish et al. 1976; Beamish and Smith, 1976). They reported modal sizes at 32 to 34 cm for depths < 150 m (82 fath) and 42 cm for depths > 150 m (82 fath). Previous cruises have demonstrated that dogfish larger than 60 cm exhibit a behavioural change by leaving the midwater to reside near the bottom and change their diet from planktonic invertebrates to fish (Beamish et al. 1976).

Ages were determined from a total of 903 spines. Estimating the age using the method described by Ketchen (1975) introduces an unknown error because the tips of the spines are generally worn down. Hence, the number of annuli missing is unknown. These age estimates can only be considered estimates until this difficulty is solved and the method validated for all age classes. The results for the total sample produced an age range of 1-27 yr of which 85% of the sample was ≤10 yr.

Dogfish grow relatively rapidly in length within the first few years after birth. No age 0+ dogfish were observed during the cruise. Age 1+ dogfish averaged 31.2 cm in total length and accounted for 24.1% of the sample. The yearly growth increment for age 2+ dogfish averaged 3.3 cm and 1.6 cm for age 3+ to 10+ dogfish. After age 10+ growth slows down to approximately 1.0 cm/yr (Fig. 25, Table 14). Juvenile dogfish of a mean size ≤60 cm will reach an average age of 16 yr, younger than age 19 as projected by Beamish and Smith (1976).

The rates of growth for sexes combined in Figure 25 during this cruise is similar to those estimated for July in the same area. The mean lengths by sex for each age group are similar (Fig. 26, Tables 15 and 16). The growth curve for females in Figure 26 is more reduced than the growth curve estimated by Ketchen (1975). The curve by Ketchen indicates a faster rate of growth up to age 15 resulting in fish being approximately 10 cm larger after age 15. The sample used by Ketchen (1975) is based on only 100 females and from spines exhibiting well defined annuli. This could possibly bias his curve towards faster growing individuals.

Segregation of size class of similar aged fish has been documented by Beamish and Smith (1976). From Figure 27, age 1+ and 2+ dogfish are approximately 1 cm larger at depths shallower than 150 m (82 fath) than dogfish of the same age captured deeper than 150 m (82 fath) (Table 17 and 18).

The mean lengths for age 3+ to 11+ dogfish are larger at depths deeper than 150 m (82 fath) than dogfish of the same age at shallower depths. The change in the shape of the curve for the older dogfish could be an artifact of increased number of tows made below 150 m (82 fath) (Fig. 7 and 8). The growth curve in Figure 27 indicates that 60 cm average length dogfish would reach age 15 above 150 m (82 fath) and age 16 below 150 m (82 fath).

The range in lengths within each age class in Tables 14 to 18 could be a reflection of slow growth or variable growth rates among stocks. In contrast to this biological phenomenon is the problem in obtaining representative samples and accurately measuring total length. Most dogfish were measured in a relaxed state, but some had to be forcibly straightened before measuring. This action could stretch the total length of dogfish sufficiently to represent additional years' growth.

The age frequency by 50 m depth intervals demonstrates that very young dogfish are found throughout the water column (Fig. 28, Table 19) but predominating the shallower waters. The age ranged from 1-20 yr. The percent of young dogfish (1-4 yr) increases at depths shallower than 120 m (66 fm) off the Halibut Bank region. These age classes correspond to the 29 and 34 cm modal lengths in Fig. 24. The 1-4 yr age classes found deeper than 120 m (66 fm) are near the Mitlenatch Island region. The percentage of larger, older dogfish increases with deeper depths. The modal ages 5 to 7 yr probably correspond to the 42-43 cm modal lengths in Fig. 24.

Annual total mortality rates were calculated from the right hand slope of the catch curves for ages 1-4 and 5-19 (Fig. 29) using the methods described by Jackson (1939). Very young dogfish, ages 1-4, were well represented in the age composition, 49.8% of the total. The mortality estimate of $A=0.38$ ($Z=0.48$) is considered a best estimate of mortality for ages 1-4. Older aged dogfish, ages 5-19, were not well represented in the catches, only 46.8% of the total. The mortality estimate for ages 5-19 of $A=0.14$ ($Z=0.15$) is considered only a tentative estimate. Due to the paucity of dogfish from ages 20-27, no mortality estimate was calculated.

Gonad conditions were recorded for 298 males and 325 females (Table 20). A description of the maturity codes used is in Table 21. During May and June 91% of the males and 89% of the females examined were immature. The high number of immature male and female dogfish is due to the large number of dogfish <60 cm present in the total sample. Both immature male and females were found at various depths trawled throughout the Strait. The mature females containing yolk sac, pups (R_3D_6) accounted for only 3% of the total number sampled. No term pups (R_3D_7) were found. The length at 50% maturity for male dogfish is 72 cm. Female dogfish are 50% mature at 92.5 cm (Fig. 30). The estimated lengths at 50% maturity are rather subjective due to the paucity of intermediate stages of maturity encountered.

Stomach contents were examined from 877 dogfish from 45 sets (Table 22). Empty stomachs were observed for 10% of juvenile dogfish

≤60 cm and 30% of the adults >60 cm. The dominant food source for juvenile dogfish ≤60 cm was various invertebrates accounting for 65% by volume. Fish species were less frequently encountered in their diet, 35% by volume. The major invertebrate component in the diet by volume was partially digested plankton, unidentified organic matter (44%) and 7% ctenophores. The major fish species consumed were hake and northern smoothtongue, 20 and 7% by volume, respectively.

The dominant food source for dogfish >60 cm was fish species accounting for 97% by volume. The invertebrates were only 3% by volume. The dominant fish species by volume in the diet were hake and herring, 81 and 3% respectively. Very few northern smoothtongue were found in the stomachs examined. The dominant invertebrate food by volume was squid (2%) and 0.2% partially digested plankton.

BROWN CATSHARK

Brown catshark were present in 20 of the 52 tows completed throughout the Strait of Georgia. A summary of the biological samples taken is presented in Table 23. Majority of the fish were present in tows within or mainly below the scatter layer. Catches were low but somewhat consistent at various depths trawled throughout the Strait with a slight increase in the catches off Mitlenatch Island and Halibut Bank.

A total of 119 brown cat shark were sampled of which 62% were males and 38% were females. Males dominated 60% of all sets.

Brown catshark measured for total length ranged from 37-57 cm (Appendix Table 12). Males ranged from 44-57 cm with a modal length of 52 cm and a mean length of 51.4 cm. Females ranged from 37-57 cm with a smaller modal length of 48 cm and a mean length of 46.1 cm.

Maturity states were examined for brown catshark collected at 210 m during set 10. The gonads examined for males were 100% ripe (R) and 100% mature (R3D3) for females. The maturity codes used are the same as for dogfish in Table 21.

Stomach contents consisted mostly of unidentified remains, some squid beaks and very few northern smoothtongue.

OTHER SPECIES SAMPLED

A summary of the biological samples taken is presented in Table 23.

A total of 29 Pacific herring ranging in length from 16-29 cm were sampled from 3 sets (Appendix Table 13). Length frequencies have been included for sablefish, chinook salmon, lingcod, shortraker rockfish, Pacific

tomcod, Pacific cod, Pacific lamprey, blackfin sculpin, pallid eelpout, turbot, English sole, tadpole snailfish, and prickly snailfish (Appendix Table 13).

LAMPREY SCARS

To determine the incidence of lamprey attacks an examination of all fish for lamprey scars was completed. Scars were observed on 22 pollock (8 males and 14 females) and 2 hake (1 male and 1 female). The frequency of occurrence of lamprey-scarred pollock and hake was 0.68% and 0.02% respectively. The scars were most frequently found in the mid-ventral region of the body. Other scars were commonly found posterior to the pectoral fin by the lateral line and near the anus. A total of seven Pacific lamprey (Lampetra tridentata) were found in all the sets of which 6 were measured for length (Appendix Table 13). One Pacific lamprey from set no. 12, caught within the scatter layer, measured 29.6 cm total length.

ACKNOWLEDGMENTS

The authors would like to thank the captain and the crew of the R/V G.B. REED and staff personnel from the Groundfish Program: Keni Weir, Mike Smith, Al Cass, and Ray Scarsbrook, who participated in sampling and in organizing the biological data for this study.

REFERENCES

Barraclough, W. E., and R. H. Herlinveaux. 1965. Exploratory studies of the echo scattering layers in Saanich Inlet and the Strait of Georgia, British Columbia. Fish. Res. Board Can. MS Rep. (Oceanog. Limnol.) 199: 42 p.

Beamish, R. J. 1976. Pacific hake and walleye pollock study of the Strait of Georgia cruise, A.P. KNIGHT November 18-20, 1974. Fish. Res. Board Can. MS Rep. 1379: 16 p.

1979. Differences in the age of Pacific hake (Merluccius productus) using whole otoliths and sections of otoliths. J. Fish. Res. Board Can. 36: 141-151.

1981. Use of fin-ray sections to age walleye pollock, Pacific cod, and albacore, and the importance of this method. Trans. Am. Fish. Soc. 110: 287-299.

Beamish, R. J., and M. S. Smith. 1976. A preliminary report on the distribution, abundance, and biology of juvenile spiny dogfish (Squalus acanthias) in the Strait of Georgia and their relationship with other fishes. Fish. Mar. Serv. Tech. Rep. 629: 44 p.

Beamish, R. J., M. Smith, and R. Scarsbrook. 1978. Hake and pollock study, Strait of Georgia, G.B. REED, January 6-February 21, 1975. Fish. Mar. Serv. Data Rep. 48: 206 p.

Beamish, R. J., M. S. Smith, R. Scarsbrook, and C. Wood. 1976. Hake and pollock study, Strait of Georgia cruise, G.B. REED June 16-27, 1975. Fish. Mar. Serv. Data Rec. 1: 174 p.

Cass, A. J., R. J. Beamish, M. S. Smith, and J. R. Scarsbrook. 1978. Hake and pollock study, Strait of Georgia cruise, G.B. REED, March 17-24, 1975. Fish. Mar. Serv. Data Rep. 50: 66 p.

Cass, A. J., R. J. Beamish, M. S. Smith, and K. Weir. 1980. Hake and pollock study, Strait of Georgia cruise, G.B. REED, January 13-28, 1976. Can. Data Rep. Fish. Aquat. Sci. 225: 88 p.

Hart, J. L. 1973. Pacific fishes of Canada. Fish. Res. Board Can. Bull. 180: 740 p.

Jackson, C. H. N. 1939. The analysis of an animal population. J. Anim. Ecol. 8: 238-246.

Ketchen, K. S. 1975. Age and growth of dogfish Squalus acanthias in British Columbia waters. J. Fish. Res. Board Can. 32: 43-59.

Shaw, W., G. A. McFarlane, and R. J. Beamish. Biological study of Pacific hake, walleye pollock and spiny dogfish in the Strait of Georgia. R/V G.B. REED, March 22-April 2, 1976. (in prep.).

Weir, K. R., R. J. Beamish, M. S. Smith, and J. R. Scarsbrook. 1978. Hake and pollock study, Strait of Georgia bottom trawl cruise G.B. REED, February 25-March 13, 1975. Fish. Mar. Serv. Data Rep. 71: 153 p.

Table 1. Catch rate (kg/hr) by set for hake, pollock and dogfish. G.B. REED, May 25-June 18, 1976.

Set no.	Average net depth (m)	Duration (min)	Catch rate (kg/hr)		
			Hake	Pollock	Dogfish
1	165	17	10,271	28	39
2	93	30	0	140	98
3	270	30	318	8	20
4	110	30	970	230	66
5	46	30	0	0	62
6	110	35	632	5	58
7	258	45	15	1	7
8	102	30	4,282	1,108	22
9	165	40	141	12	54
10	220	55	112	1	23
11	256	62	183	2	23
12	110	45	787	80	7
13	165	60	17	7	1
14	200	45	111	11	11
15	176	60	28	1	3
16	200	60	38	3	5
17	256	45	355	29	12
18	159	45	253	4	7
19	85	45	7	453	29
20	110	30	4,230	104	6
21	135	30	188	12	2
22	117	30	10	22	2
23	184	30	18	12	8
24	93	27	0	73	22
25	99	45	2,020	113	7
26	170	30	200	60	18
27	274	30	130	56	20
28	271	30	38	4	22
30	132	30	146	28	4
31	160	30	60	30	2
32	101	35	309	237	99
33	117	49	929	120	22
34	165	30	150	2	58
35	106	45	2,601	7	7
36	260	60	79	1	107
37	168	30	72	2	8
38	95	30	3,704	52	40
39	209	29	19	2	0
40	248	30	26	4	18
41	135	30	324	6	8
42	200	30	304	4	66
43	250	30	122	2	32
44	146	30	76	2	8
45	55	30	1	0	20
46	104	46	208	4	4

Table 1 (cont'd)

Set no.	Average net depth (m)	Duration (min)	Catch rate (kg/hr)		
			Hake	Pollock	Dogfish
47	50	60	7	239	8
48	51	45	1	295	17
49	128	45	93	1	75
50	165	30	170	58	8
51	54	30	322	300	54
52	220	30	24	14	4

Table 2. Summary of Pacific hake sampled. G.B. REED, May 25-June 18, 1976.

Set no.	Length			Maturity	Stomach contents	Weight	Otoliths	Remarks
	M	F	T					
1	392	182	574	299	-	-	299	Random 6 of 70 tubs
3	251	95	405	-	-	-	-	Total catch
4	178	64	242	242	-	-	-	ℓ/s/mt-Random 3 of 12 tubs
6	138	93	231	-	-	-	-	ℓ/s on 3 of 9 tubs
7	36	16	52	-	-	-	-	Total catch
8	133	117	250	-	-	-	-	3 tubs of 50
9	122	70	269	-	-	-	-	Total catch
10	174	73	279	-	-	-	-	Total catch
11	250	245	557	-	-	-	-	Total catch
12	120	180	300	300	-	300	300	ℓ/s/mat/age/ weight 4 out of 15 tubs
13	17	28	291	-	-	-	-	Total catch
14	96	87	213	-	-	-	-	Total catch
15	26	53	338	-	-	-	-	Total catch
16	61	42	157	-	-	-	-	Total catch
17	150	90	251	-	-	-	-	3 tubs of 7
18	189	217	659	-	-	-	-	1/2 of total catch
20	156	132	292	95	95	-	-	1 tub ℓ,s, st, mat. 2 tubs ℓ,s. Total 49 tubs. Total catch sampled for y. of y.
21	178	157	489	-	-	-	-	Total catch
22	8	15	88	-	-	-	-	Total catch
23	20	14	64	34	34	-	-	Total catch
25	105	172	277	-	-	-	-	3 tubs of 37
26	117	110	246	-	-	-	-	Total catch
27	79	57	136	-	-	-	-	Total catch
28	23	29	61	-	-	-	-	Total catch
30	81	73	204	-	-	-	-	Total catch
31	31	43	277	-	-	-	-	Total catch
32	186	175	361	78	-	-	-	Total catch
33	110	148	258	-	-	-	-	3 tubs of 15
34	68	61	436	-	-	-	-	Total catch
35	217	311	528	89	89	-	359	Random 6 tubs
36	102	126	236	-	-	-	-	Total catch
37	50	40	129	-	-	-	-	Total catch
38	271	244	515	-	-	-	-	Random 6 tubs of 45
39	-	-	51	-	-	-	-	Total catch
40	9	6	217	-	-	-	-	Total catch
41	132	173	610	-	-	-	-	Total catch
42	164	114	325	-	-	-	-	Total catch
43	80	45	132	-	-	-	-	Total catch

Table 2 (cont'd)

Set no.	Length			Maturity	Stomach contents	Weight	Otoliths	Remarks
	M	F	T					
44	45	56	205	-	-	-	-	Total catch
45	-	-	1	-	-	-	-	Total catch
46	37	142	198	-	-	-	-	Total catch
47	3	11	14	-	-	-	-	Total catch
48	59	42	468	-	-	-	-	Total catch
49	13	42	55	-	-	-	-	Total catch
50	135	136	896	-	-	-	-	Total catch
51	81	228	309	-	-	-	-	Total catch
52	13	5	111	-	-	-	-	3 of 4 tubs
								Total catch
Total	4,906	4,559	13,257[a]	1,137	218	300	958	

[a]includes 3792 unsexed fish.

Table 3. Mean size of Pacific hake for each age class in set number 35. G.B. REED, May 25-June 18, 1976.

	Male			Female			Total		
Age	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N
3	38.5	1.05	6	40.0	0.82	4	39.1	1.20	10
4	39.5	1.93	31	42.1	1.74	30	40.8	2.24	61
5	43.0	2.03	17	43.7	2.11	27	43.4	2.08	44
6	42.6	1.31	35	44.7	1.72	74	44.0	1.87	109
7	44.0	1.41	4	45.3	3.54	7	44.8	2.93	11
8	46.0	0.00	1	47.7	2.63	4	47.4	2.41	5
9	44.6	2.30	5	47.2	0.84	5	45.9	2.13	10
10	45.4	1.52	5	45.0	0.00	1	45.7	1.85	6
11	43.0	0.00	1	47.0	0.00	1	45.0	2.83	2
12	44.5	1.94	9	45.4	1.85	8	44.9	1.89	17
13	44.3	2.06	4	46.5	1.76	6	45.6	2.12	10
14	42.8	2.99	4	48.7	3.79	3	45.3	4.39	7
15	45.5	1.73	4	45.8	3.50	4	45.6	2.56	8
16	46.3	0.58	3	45.5	1.29	11	45.7	1.20	14
17	43.5	1.88	15	44.8	1.64	17	44.2	1.79	32
18	42.5	0.71	2	46.5	1.73	4	45.2	2.48	6
19	43.0	0.00	1	45.0	0.00	1	44.0	1.41	2
20				47.0	0.00	1	47.0	0.00	1
Total			147			208			355

Table 4. Mean size of Pacific hake for each age class in set number 12. G.B. REED, May 25-June 18, 1976.

Age	Male			Female			Total		
	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N	$\bar{X}$	S.D	N
2	-	-	-	26.0	0.00	1	26.0	0.00	1
3	-	-	-	0	0	0	0	0	0
4	40.8	2.99	4	40.5	0.71	2	40.7	2.34	6
5	43.9	2.27	7	46.0	1.26	6	44.8	2.11	13
6	46.0	3.04	30	46.7	2.46	48	46.5	2.70	78
7	46.3	1.71	4	49.0	3.65	7	48.0	3.29	11
8	47.6	1.77	8	49.9	2.68	19	48.9	2.58	27
9	44.2	2.17	5	49.5	2.07	11	47.9	3.26	16
10	47.4	2.99	7	49.6	1.81	7	48.5	2.62	14
11	46.6	1.99	8	49.5	3.62	11	48.3	3.32	19
12	46.3	2.02	14	48.8	2.67	22	47.8	2.70	36
13	45.3	1.35	11	48.4	2.18	9	46.7	2.36	20
14	46.0	1.83	4	51.3	3.06	3	48.3	3.59	7
15	45.0	0.00	1	49.0	1.73	3	48.0	2.45	4
16	47.0	0.00	2	50.5	3.11	4	49.3	3.01	6
17	44.1	1.21	7	48.8	3.62	14	47.2	3.74	21
18	44.2	1.94	6	49.5	7.76	6	46.8	6.07	12
19	44.0	0.00	1	-	-	-	44.0	0.00	1
Total			119			173			292

Table 5. Pacific hake maturity frequency by haul and by sex. G.B. REED, May 25-June 18, 1976.

Gonad maturity stage	Set number											
	1		4		12		20		23		32	
	M	F	M	F	M	F	M	F	M	F	M	F
I_1	-	1	-	-	-	1	-	-	13	7	-	-
I_2	11	24	-	-	-	0	2	5	1	2	-	-
I^{Ra}	0	2	-	-	-	0	0	2	0	1	-	1
RR	4	0	-	-	-	0	0	0	0	0	-	0
S	11	0	-	-	13	0	0	0	0	0	-	0
Rs	0	0	-	-	0	0	0	0	0	0	-	1
Rc	148	3	175	2	105	4	33	1	0	0	13	0
Rt	32	63	3	62	2	174	23	29	6	4	24	39
Total	206	93	178	64	120	179[b]	58	37	20	14	37	41
Net depth[c] (m)	128		88-112		110-113		88-123		177-187		88-110	

Table 5 (cont'd)

Gonad maturity stage	Set number 35 M	35 F	Total M	Total F	(%) M	(%) F
I_1	-	2	13	9	2.0	1.9
I_2	-	5	14	33	2.1	6.9
1Ra	-	0	0	11	0	2.3
RR	-	0	4	0	0.6	0
S	-	0	24	0	3.6	0
Rs	-	0	0	1	0	0.2
Rc	-	2	474	12	71.9	2.5
Rt	40	40	130	411	19.7	86.2
Total	40	49	659	477		
Net depth[c]	91-128					

[a]The 1R gonad maturity stage is present only in females.

[b]One female at 47 cm with no maturity stage not included.

[c]Depth of headline rope.

Table 6. Pacific hake - maturity states. (Weir et al. 1978)

	Female	Male
Immature 1 I-1	Virgin, ovary small, light pink and semi-transparent, no ova.	Virgin, testes small, no convolutions.
Immature 2 I-2	Virgin, ovary still small, light pink and semi-transparent, some ova but without yolk.	Virgin, testes small and pink but convoluted.
Ripening 1 R-1	Ovary small but starting to enlarge, fills about 1/4 body cavity, light yellow ova with yolk and opaque, blood vessels on ovary pronounced.	Testes about 1/4 body cavity and convoluted, contains small amount of milt, convolutions firm and pink.
Ripening 2 R-2	Ovary larger, filling more than 1/3 the body cavity, yellow. Ova with yolk and opaque, blood vessels on ovary pronounced.	Testes about 1/2 body cavity, convoluted, loose and about 2/3 full of milt, edge of convolutions pink and firm.
Ripe R	Ovary translucent yellow--1/2-2/3 the body cavity, yellow ova opaque or translucent.	Testes large, convoluted and full of milt, fill about 2/3 of body cavity, some milt may flow from vent with pressure.
1 Ripe 1R	Ovary large, fills 1/2-2/3 the body cavity, less than 1/2 the ova are translucent.	No stage in males.
2 Ripe 2R	Ovary large, fills 2/3 the body cavity, more than 1/2 the ova are translucent.	No stage in males.
Running ripe RR	Translucent ova flow from vent with <u>slight</u> pressure, ovaries almost fill body cavity, ova opaque or translucent, ova loose in ovary. Ovary translucent.	Testes large, milt flows from vent with <u>slight</u> pressure, edge of testes may be bloodshot in fresh specimens.
Spent S	Ovary bloodshot, purple in color, some ova may remain translucent. Ovary flaccid about 1/3 body cavity.	Testes bloodshot and flaccid, may contain some milt, now reduced to less than 1/2 body cavity.

Table 6 (cont'd)

	Female	Male
Resorbing Resb. R_s	Fish has not spawned, ovaries large, about 1/2 body cavity and soft and flaccid, ova are large and watery.	No stage in males.
Recovering Rec. R_c	Ovaries returning to pre-ripening size, less than 1/2 body cavity, not flaccid, moderately firm. Ova small, no bloodshot appearance.	Testes moderately firm, little milt and loose convolutions.
Resting Rest. R_t	Ovaries small less than 1/4 body cavity, moderately firm, bloodshot appearance gone, white sheen to external ovary surface.	Testes small, firm and pink, may be some milt, with convolutions, less than 1/4 body cavity.

Table 7. Pacific hake stomach contents. G.B. REED, May 25-June 18, 1976.

Number examined	218	
Number empty	32	
Number everted	85	
Food items	Volume (cc)	(%)
Herring	20	18.2
Leuroglossus	1	0.9
Glass shrimp	9	8.2
Euphausiid	77	70.0
Partially digested plankton	2	1.8
Partially digested matter	1	0.9
Total volume	110	

Table 8. Summary of walleye pollock sampled. G.B. REED, May 25-June 18, 1976.

Set no.	Length M	Length F	Length T	Maturity	Stomach contents	Weight	Fins	Remarks
1	5	9	14	14	-	-	-	Total catch
2	101	52	153	-	-	-	-	Total catch
3	5	1	6	6	-	-	-	Total catch
4	117	107	224	-	-	-	-	Total catch
6	2	2	4	4	-	-	-	Total catch
7	1	-	1	-	-	-	-	Total catch
8	120	142	262	262	-	262	262	3 tubs out of 13 total
9	6	7	13	-	-	-	-	Total catch
12	40	63	103	-	-	-	-	Total catch
13	5	11	16	-	-	-	-	Total catch
14	8	7	15	-	-	-	-	Total catch
16	2	4	6	-	-	-	-	Total catch
17	29	18	47	-	-	-	-	Total catch
18	4	5	9	-	-	-	-	Total catch
19	138	64	401	191	-	-	191	2 tubs ℓ only, 2 tubs ℓ, s, fins out of total of 8 tubs
20	53	44	97	-	-	-	-	Total catch
21	6	6	12	-	-	-	-	Total catch
22	19	14	33	-	-	-	-	Total catch
23	5	6	11	11	11	-	11	Total catch
24	19	29	48	48	-	-	48	Total catch
25	102	71	173	-	-	-	-	Total catch
26	40	24	64	-	-	-	-	Total catch
27	36	20	56	-	-	-	-	Total catch
28	3	1	4	-	-	-	-	Total catch
30	9	16	25	-	-	-	-	Total catch
31	13	13	26	-	-	-	-	Total catch
32	138	136	274	-	-	-	-	Total catch
33	115	88	203	-	-	-	-	Total catch
34	4	1	5	-	-	-	-	Total catch
36	1	1	2	-	-	-	-	Total catch
38	28	25	53	-	-	-	-	Total catch
39	-	-	1	-	-	-	-	Total catch
40	1	1	2	-	-	-	-	Total catch
41	1	4	6	-	-	-	-	Total catch, includes 1 unsexed.
42	-	-	3	-	-	-	-	Total catch
43	-	-	3	-	-	-	-	Total catch
44	-	-	5	-	-	-	-	Total catch
46	-	-	3	-	-	-	-	Total catch
47	169	112	281	-	-	-	-	3 tubs of 6
48	178	89	267	-	87	-	-	1 tub for ℓ, s, st., 2 tubs ℓ, s only, out of total 6 tubs

Table 8 (cont'd)

Set no.	Length			Maturity	Stomach contents	Weight	Fins	Remarks
	M	F	T					
49	-	-	3	-	-	-	-	Total catch
50	31	28	59	-	-	-	-	Total catch
51	151	84	235	-	-	-	-	3 out of 4 tubs
52	7	-	7	-	-	-	-	Total catch
	1,712	1,305	3,235	536	98	262	512	

Table 9. Mean size of walleye pollock for each age class for sets 8 and 19. G.B. REED, May 25-June 18, 1976.

Age (yr)	Male			Female			Total		
	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N
2	34.4	1.92	16	34.5	0.71	2	34.4	1.85	18
3	37.5	2.30	144	38.7	2.22	76	37.9	2.34	220
4	40.1	2.37	56	42.1	2.38	50	41.1	2.56	106
5	41.6	2.64	21	45.0	1.82	41	43.8	2.64	62
6	43.0	2.12	5	45.9	2.03	18	45.3	2.34	23
7	43.0	0.0	1	46.2	2.17	5	45.7	2.34	6
8	-	-	-	51.0	0.00	1	51.0	0.00	1
Total			243			193			436

Table 10. Walleye pollock maturity frequency by haul and by sex. G.B. REED, May 25-June 18, 1976.

Gonad maturity stage	Set number									
	1		3		6		8		19	
	M	F	M	F	M	F	M	F	M	F
I_2	-	-	-	-	-	-	-	1	1	1
S	-	-	-	-	-	1	-	0	0	0
Rc	-	-	1	-	-	0	-	0	1	0
Rt	5	9	4	1	2	1	120	141	130	58
Total	5	9	5	1	2	2	120	142	132	59

Gonad maturity stage	Set number							
	23		24		Total		(%)	
	M	F	M	F	M	F	M	F
I_2	-	-	-	-	1	2	0.3	0.8
S	-	-	-	-	0	1	0	0.4
Rc	-	-	-	-	2	0	0.7	0
Rt	5	6	19	29	285	245	99.0	98.8
Total	5	6	19	29	288	248		

Table 11. Walleye pollock maturity stages by sex. (Weir et al. 1978)

	Female	Male
Immature 1 I-1	Virgin, no ova, ovary small and semi-transparent.	Virgin, testes small, transparent, no convolutions or few and small convolutions.
Immature 2 I-2	Virgin, some ova but scattered in ovary, ovary semi-transparent and small, ova opaque.	Virgin, testes small and convoluted.
Ripening 1 R-1	Ovary starting to enlarge, fills about 1/4 body cavity, ova opaque, blood vessels pronounced.	Testes beginning to enlarge fills about 1/4 body cavity, convoluted, firm and beginning to contain milt.
Ripening 2 R-2	Ovary large, fills 1/3-1/2 body cavity, blood vessels pronounced, ova opaque.	Testes large, fill about 1/3 body cavity, extremely convoluted, contain milt.
Ripe R	Ovary large, fills 1/2-2/3 body cavity.	Testes extremely convoluted, filled with free flowing milt, testes large, fill 1/2-2/3 body cavity.
Running Ripe RR	Ovaries very large, ova flow from vent with slight pressure.	Testes very large, milt flows from vent with slight pressure.
Spent S	Ovary bloodshot, purple in colour, some ova may remain, ovary flaccid.	Testes bloodshot, may contain milt.
Resorbing Resb. R_s	Ovaries large, watery; ova large, soft and flaccid	No stage in males.
Recovering Rec. R_c	Ovaries returning to pre-ripening size moderately firm, white sheen to external ovary.	Testes small, moderately firm, some milt and losing convolutions.
Resting Rest. R_t	Ovaries small and semi-transparent, ova opaque.	Testes small, firm, little milt and convoluted.

Table 12. Stomach contents of walleye pollock. G.B. REED, May 25-June 18, 1976.

Number examined	98	
Number empty	0	
Number everted	3	
Food items	**Volume (cc)**	**(%)**
Hake	4	4.6
Fish remains (unidentified)	8	9.2
Glass shrimp	1	1.1
Euphausiid	8	9.2
Partially digested plankton	53	60.9
Squid	2	2.3
Polycheate	1	1.1
Partially digested matter	10	11.5
Total volume	87	

Table 13. Summary of dogfish sampled. G.B. REED, May 25-June 18, 1976.

Set no.	Length			Maturity	Stomach contents	Spines	Sampling remarks
	M	F	T				
1	5	3	8	8	8	-	Total catch
2	10	25	35	35	35	-	Total catch
3	17	7	24	24	24	-	Total catch
4	8	9	17	16	17	1	Total catch
5	2	4	6	6	6	-	Total catch
6	2	7	9	9	9	-	Total catch
7	1	4	5	5	5	-	Total catch
8	7	6	13	13	13	-	Total catch
9	59	44	103	37	50	103	Total catch
10	30	28	58	-	-	58	Total catch
11	23	25	48	-	-	48	Total catch
12	10	8	18	-	-	18	Total catch
13	3	6	9	9	9	9	Total catch
14	3	4	7	7	7	7	Total catch
15	4	1	5	5	5	5	Total catch
16	5	6	11	11	11	11	Total catch
17	10	10	20	20	20	20	Total catch
18	5	3	8	2	8	8	Total catch
19	9	8	17	3	-	17	Total catch
20	2	1	3	3	3	3	Total catch
21	5	1	6	6	6	6	Total catch
22	6	6	12	12	12	12	Total catch
23	1	2	3	3	3	3	Total catch
24	-	4	4	4	4	4	Total catch
25	5	8	13	-	-	-	Total catch
26	2	4	6	1	6	6	Total catch
27	6	16	22	-	22	22	Total catch
28	13	14	27	-	27	27	Total catch
30	2	3	5	-	5	5	Total catch
31	1	-	1	1	1	1	Total catch
32	1	12	13	10	13	13	Total catch
33	2	8	10	10	10	10	Total catch
34	17	15	32	12	32	32	Total catch
35	9	13	22	1	22	22	Total catch
36	138	120	258	-	80	80	Total catch
37	7	7	14	-	14	14	Total catch
38	4	2	6	6	6	6	Total catch
40	7	10	17	17	17	17	Total catch
41	6	6	12	12	12	12	Total catch
42	47	48	95	94	95	95	Total catch
43	28	18	46	46	46	46	Total catch
44	8	7	15	15	15	15	Total catch
45	4	4	8	8	8	8	Total catch
46	4	9	13	13	13	13	Total catch
47	26	21	47	47	47	47	Total catch
48	13	13	26	6	26	26	Total catch
49	4	8	12	1	12	12	Total catch

Table 13 (cont'd)

Set no.	Length			Maturity	Stomach contents	Spines	Sampling remarks
	M	F	T				
50	2	4	6	1	6	6	Total catch
51	37	47	84	81	84	84	Total catch
52	-	3	3	3	3	3	Total catch
Total	620	642	1,262	623	877	955	

Table 14. Mean length at age for sexes combined of dogfish. G.B. REED, May 25-June 18, 1976.

Age class (yr)	Frequency (no.)	Size range (mm)	Mean length (mm)
1	218	259-468	312
2	84	287-402	345
3	71	316-427	369
4	77	350-542	400
5	67	369-485	420
6	65	362-494	430
7	55	357-479	433
8	50	415-519	461
9	40	424-526	473
10	38	439-566	492
11	20	390-532	484
12	26	419-558	502
13	23	348-595	506
14	13	496-640	541
15	9	484-590	532
16	6	462-680	560
17	6	530-880	660
18	4	576-656	611
19	1		585
20	6	624-820	682
21	5	551-820	698
22	3	690-840	780
23	5	604-900	736
24	1		650
25	4	680-880	765
26	4	680-820	738
27	2	820-840	830
Total	903		

Table 15. Mean length by age class for male dogfish. G.B. REED, May 25-June 18, 1976.

Age class (yr)	Frequency (no.)	Size range (mm)	Mean length (mm)
1	97	268-469	312
2	45	305-402	349
3	37	316-427	371
4	38	350-457	398
5	38	383-485	427
6	38	362-494	432
7	22	357-479	436
8	29	415-519	461
9	17	424-514	477
10	18	454-566	489
11	11	390-532	485
12	12	419-558	501
13	13	420-595	510
14	7	498-597	544
15	4	487-510	501
16	1		501
17	2	587-880	734
18	3	576-656	615
19	0		0
20	5	624-820	691
21	3	551-700	647
22	1		810
23	3	604-900	741
24	1		650
25	2	720-780	750
26	4	680-820	738
27	1		820
Total	452		

Table 16. Mean length by age class for female dogfish. G.B. REED, May 25-June 18, 1976.

Age class (yr)	Frequency (no.)	Size range (mm)	Mean length (mm)
1	121	259-368	312
2	39	287-400	341
3	35	324-414	365
4	39	350-542	402
5	29	360-476	411
6	27	392-487	427
7	33	362-461	430
8	21	416-514	461
9	22	431-526	471
10	20	439-551	494
11	9	429-531	483
12	14	436-558	502
13	10	348-587	500
14	6	496-640	536
15	5	484-690	557
16	5	462-682	572
17	4	530-820	624
18	1		601
19	1		585
20	1		640
21	2	730-820	775
22	2	690-840	765
23	2	695-763	729
24	0		0
25	2	680-880	730
26	0		0
27	1		840
Total	451		

Table 17. Mean length by age class for sexes combined of dogfish caught above 150 m. G.B. REED, May 25-June 18, 1976.

Age class (yr)	Frequency (no.)	Size range (mm)	Mean length (mm)
1	114	266-362	316
2	54	287-384	341
3	30	324-405	362
4	19	350-411	378
5	12	360-485	412
6	9	362-487	415
7	5	405-442	424
8	1		479
9	3	440-526	475
10	3	465-502	485
11	5	390-531	482
12	4	492-558	539
13	2	491-595	543
14	0		0
15	0		0
16	0		0
17	2	587-880	734
18	0		0
19	0		0
20	2	650-680	665
21	2	690-730	710
22	1		810
23	3	720-900	794
24	0		0
25	1		850
26	3	680-820	747
27	2	820-840	830
28	1		830
29	4	850-970	900
30	1		670
Total	283		

Table 18. Mean length by age class for sexes combined of dogfish caught below 150 m. G.B. REED, May 25-June 18, 1976.

Age class (yr)	Frequency (no.)	Size range (mm)	Mean length (mm)
1	83	265-403	305
2	29	243-402	348
3	41	316-431	372
4	57	350-542	407
5	55	369-480	422
6	54	368-482	431
7	49	357-479	433
8	47	415-519	459
9	36	424-526	474
10	38	439-566	493
11	14	413-532	482
12	21	419-540	494
13	20	420-587	503
14	13	496-640	541
15	9	484-690	532
16	6	462-682	560
17	4	530-820	624
18	4	576-656	611
19	1		585
20	4	624-820	691
21	3	551-820	690
22	2	690-840	765
23	3	720-900	794
24	1		650
25	3	680-780	727
26	0		0
27	0		0
28	2	740-940	840
29	2		800
Total	601		

Table 19. Mean size of dogfish for each age class (≤20 yr) by depth interval. G.B. REED, May 25-June 18, 1976.

Age (yr)	Depth interval (m)														
	0-59			60-119			120-179			180-239			240-299		
	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N
1	32.2	19	67	31.4	21	43	30.4	30	64	30.8	29	27	31.0	34	17
2	34.1	20	33	34.2	15	17	34.8	23	17	35.2	19	7	35.2	27	10
3	36.4	19	19	35.8	22	10	37.1	28	16	36.8	27	14	37.9	26	12
4	38.1	21	14	36.4	16	4	40.5	19	18	40.5	25	16	40.9	40	25
5	39.7	28	7	41.2	41	2	43.3	23	21	41.8	36	13	41.7	24	24
6	45.2	0	1	39.5	27	4	43.2	30	15	43.6	32	17	42.6	24	28
7	40.6	2	2	43.6	6	3	44.7	17	10	43.7	26	18	42.5	29	22
8			0			0	46.2	23	16	46.3	30	16	45.4	27	18
9			0	44.0	0	1	47.9	27	10	47.2	31	9	47.4	23	20
10	48.8	0	1			0	48.8	16	8	50.9	37	9	48.8	32	20
11	45.3	71	3	53.1	0	1	50.3	42	4	48.6	23	3	47.9	39	9
12	52.1	0	2	55.8	0	1	52.3	33	6	51.0	20	8	47.0	36	9
13			0			0	51.9	59	5	45.8	78	4	51.2	38	14
14			0			0			0	55.6	36	3	53.6	49	10
15			0			0	48.7	0	1	52.4	23	2	54.2	76	6
16			0			0	68.0	0	1	59.2	128	2	49.9	34	3
17	58.7	0	1	88.0	0	1			0	57.1	58	2	67.7	20	2
18			0						0			0	61.1	33	4
19			0						0			0	58.5	0	1
20	66.5	0	2				75.0	0	2	64.0	0	1	62.4	0	1
Total			152			87			214			171			255

Table 20. Dogfish maturity frequency by haul and by sex. G.B. REED, May 25-June 18, 1976.

Gonad maturity stage	Set number											
	1		2		3		4		5		6	
	M	F	M	F	M	F	M	F	M	F	M	F
I_1	2		9		18		8					
I2	0		0									
R	3		1						2		2	
I_1D_1												
I_1D_2												
I_2D_1				14		5		4				
I_2D_2				0		0		0				1
R_1D_1				1		0		0				0
R_1D_2				2		0		0				0
R_1D_3				3		1		0				2
R_1D_4				0				0				0
R_1D_5				0				0				0
R_2D_3				3				0				0
R_2D_4				1				0				0
R_3D_3		3		0				2				3
R_3D_4				1				1		2		0
R_3D_5								0		0		1
R_3D_6								1		2		
R_3D_8												
Resting												
Total	5	3	10	25	18	6	8	8	2	4	2	7
Net depths (m)	165		75-110		265-275		88-112		42-64		91-113	

Table 20 (cont'd)

Gonad maturity stage	Set number 7 M	7 F	8 M	8 F	9 M	9 F	13 M	13 F	14 M	14 F	15 M	15 F
I_1			6		16		3		3		4	
I_2			0									
R	1		1									
I_1D_1				4				6				1
I_1D_2				0								
I_2D_1		1		1		21				3		
I_2D_2		3		0						0		
R_1D_1				0						0		
R_1D_2				0						0		
R_1D_3				0						0		
R_1D_4				0						0		
R_1D_5				0						0		
R_2D_3				0						0		
R_2D_4				0						0		
R_3D_3				1						0		
R_3D_4										0		
R_3D_5										0		
R_3D_6										1		
R_3D_8												
Resting												
Total	1	4	7	6	16	21	3	6	3	4	4	1
Net depth[a] (m)	256-265		100-106		146-180		163-166		128-210		128-185	

Table 20 (cont'd)

Gonad maturity stage	Set number 16 M	16 F	17 M	17 F	18 M	18 F	19 M	19 F	20 M	20 F	21 M	21 F
I_1	5		10						1		5	
I_2					1				0			
R							1		1			
I_1D_1										1		1
I_1D_2												
I_2D_1		6		10		1						
I_2D_2												
R_1D1												
R_1D_2												
R_1D_3								1				
R_1D_4								0				
R_1D_5								0				
R_2D_3								0				
R_2D_4								0				
R_3D_3								0				
R_3D_4								0				
R_3D_5								0				
R_3D_6								0				
R_3D_8								0				
Resting								1				
Total	5	6	10	10	1	1	1	2	2	1	5	1
Net depth[a] (m)	200		250-257		157-165		77-90		88-123		131-159	

Table 20 (cont'd)

Gonad maturity stage	Set number 22 M	22 F	23 M	23 F	24 M	24 F	26 M	26 F	31 M	31 F	32 M	32 F
I_1	6		1						1			
I_2												
R											1	
I_1D_1		6										
I_1D_2												
I_2D_1				1		1						
I_2D_2				0		1						
R_1D_1				0		0						
R_1D_2				0		0						
R_1D_3				0		0						1
R_1D_4				0		0						1
R_1D_5				0		0						1
R_2D_3				0		0						0
R_2D_4				0		0						0
R_3D_3				0		1						0
R_3D_4				0		0						0
R_3D_5				0		0						0
R_3D_6				1		1		1				4
R_3D_8												2
Resting												
Total	6	6	1	2	0	4	0	1	1	0	1	9
Net depth[a] (m)	115-128		177-187		91-110		137-176		110-165		88-110	

Table 20 (cont'd)

Gonad maturity stage	Set number											
	33		34		35		38		40		41	
	M	F	M	F	M	F	M	F	M	F	M	F
I_1	1								7		6	
I_2	0		4									
R	1		3		1		4					
I_1D_1		4								4		
I_1D_2		0								0		
I_2D_1		0		2						3		6
I_2D_2		2		1						0		
R_1D_1		0		0						0		
R_1D_2		0		2						3		
R_1D_3		1						1				
R_1D_4		0						0				
R_1D_5		1						0				
R_2D_3								1				
R_2D_4												
R_3D_3												
R_3D_4												
R_3D_5												
R_3D_6												
R_3D_8												
Resting												
Total	2	8	7	5	1	0	4	2	7	10	6	6
Net depth[a] (m)	90-132		70-168		91-128		73-100		200-252		128-150	

Table 20 (cont'd)

Gonad maturity stage	Set number 42 M	42 F	43 M	43 F	44 M	44 F	45 M	45 F	46 M	46 F	47 M	47 F
I_1	47		27		7		2		4		25	
I_2			0		1		0				1	
R			1				2					
I_1D_1												
I_1D_2								3				
I_2D_1		47		18		7		0		9		21
I_2D_2								1				
R_1D_1												
R_1D_2												
R_1D_3												
R_1D_4												
R_1D_5												
R_2D_3												
R_2D_4												
R_3D_3												
R_3D_4												
R_3D_5												
R_3D_6												
R_3D_8												
Resting												
Total	47	47	28	18	8	7	4	4	4	9	26	21
Net depth[a] (m)	195-204		250		143-148		55-64		104		49-51	

Table 20 (cont'd)

Gonad maturity stage	Set number 48 M	48 F	49 M	49 F	50 M	50 F	51 M	51 F	52 M	52 F	Total M	Total F
I_1	3						36				263	
I_2	1										8	
R	1				1						27	
I_1D_1												27
I_1D_2												3
I_2D_1								42		3		226
I_2D_2		1						0				10
R_1D_1								0				1
R_1D_2				1				1				9
R_1D_3								1				11
R_1D_4								0				1
R_1D_5								0				2
R_2D_3								0				4
R_2D_4								0				1
R_3D_3								0				10
R_3D_4								1				5
R_3D_5												1
R_3D_6												11
R_3D_8												2
Resting												1
Total	5	1	0	1	1	0	36	45	0	3	298	325
Net depth[a] (m)	50-55		125-132		165		53-60		218-225			

[a]Depth of headline rope.

Table 21. Spiny dogfish maturity stages[a] by sex. (Beamish and Smith, 1976)

Female			
Ovaries		Uterus	
I1	No ova.	D1	Thin, no thickening.
I2	Ova small, 0-5 mm white, firm ovary <1/4 length of body cavity.	D2	Thin <5 mm, thickened section <1/4 length of body cavity.
R1	Ova 5-10 mm white, firm, ovary flaccid flocculent external surface.	D3	About 5 mm thickened section; <1/4 length of body cavity.
R2	Ova 10-30 mm yellow; ovary flaccid.	D4	About 10 mm or wider thickened section, flaccid; >1/3 length of body cavity.
R3	Ova are two sizes: white, firm <20 mm and yellow, firm >20 mm; ovary flaccid 1/4 to 1/3 length of body cavity.	D5	Uterine eggs.
		D6	Yolk sac, pups.
		D7	Term pup.
Resting	Ova small, white, firm <10 mm; ovary flaccid, fibrous exterior granular texture.	D8	Flaccid.

Males	
I_1	Claspers do not extend past tips of anal fins; testes flat creamy.
I_2	Claspers extend past tips of anal fins; testes creamy colour, not brown, or bloodshot.
R	Claspers extend past tips of anal fins; stiff, testes creamy, brown, bloodshot, very firm.

[a]The codes: I = immature.
R = ripening, ripe.
D = developing.

Table 22. Dogfish stomach contents. G.B. REED, May 25-June 18, 1976.

	Dogfish ≤60 cm (total length)	Dogfish >60 cm (total length)	Total
Number examined	765	112	877
Number empty	77	34	111
	Volume (cc)	Volume (cc)	
Hake	365	4,629	4,994
Fish remains (unidentified)	22	648	670
Herring	-	200	200
Pollock	2	90	92
Myctophid (unidentified)	62	-	62
Leuroglossus	135	20	155
Partially digested plankton	455	11	466
Digested matter (unidentified)	360	-	360
Ctenophores	129	-	120
Euphausiids	88	2	90
Glass shrimp	76	1	77
Pink shrimp	-	5	5
Amphipods	32	-	32
Polycheate	23	-	23
Squid	18	130	148
Copepods	2	-	2
Jellyfish	1	7	8
Sea urchin	1	-	1
Seaweed	-	10	10

Table 23. Summary of species sampled, other than hake, pollock, and dogfish. G.B. REED, May 25-June 18, 1976.

Species	Type of sample taken						
	Set no.	Length	Sex	Maturity	Stomach contents	Total no. in catch	No. preserved
Sablefish	3	3	-	-	-	3	
Brown cat shark	3	3	3	-	-	3	
	7	2	2	-	-	2	
	9	2	2	-	-	2	
	10	17	17	17	17	17	
	11	13	13	-	-	13	
	14	2	2	-	-	2	
	15	2	2	-	-	2	
	16	3	3	-	-	3	
	17	2	2	-	-	2	
	27	13	13	-	-	13	
	28	8	8	-	-	8	
	34	4	4	-	-	4	
	36	12	12	-	-	12	
	37	3	3	-	-	3	
	39	1	1	-	-	1	
	40	5	5	-	-	5	
	42	11	11	-	-	11	
	43	8	8	-	-	8	
	44	5	5	-	-	5	
	49	4	4	-	-	4	
Chinook salmon	4	1	1	1	1	1	
	30	1	1	-	1	1	
	48	1	1	1	1	1	
Lingcod	6	1	1	1	1	1	
Shortraker rockfish	11	3	3	3	-	3	
	27	1	-	-	-	1	
Pacific tomcod	17	1	-	-	-	1	
	46	2	-	-	-	2	
Pacific cod	18	1	1	1		1	
Pacific lamprey	12	1	-	-	-	1	
	25	1	-	-		1	
	49	1	-	-	-	1	
	51	3	-	-	-	3	
Pacific herring	36	1	-	-	-	1	
	37	16	-	-	-	16	
	47	12	-	-	-	12	

Table 23 (cont'd)

Species	Type of sample taken						
	Set no.	Length	Sex	Maturity	Stomach contents	Total no. in catch	No. preserved
Blackfin sculpin	40	4	-	-	-	4	4
Pallid eelpout	40	2	-	-	-	2	2
Turbot	42	1	-	-	-	1	
English sole	46	1	-	-	-	1	

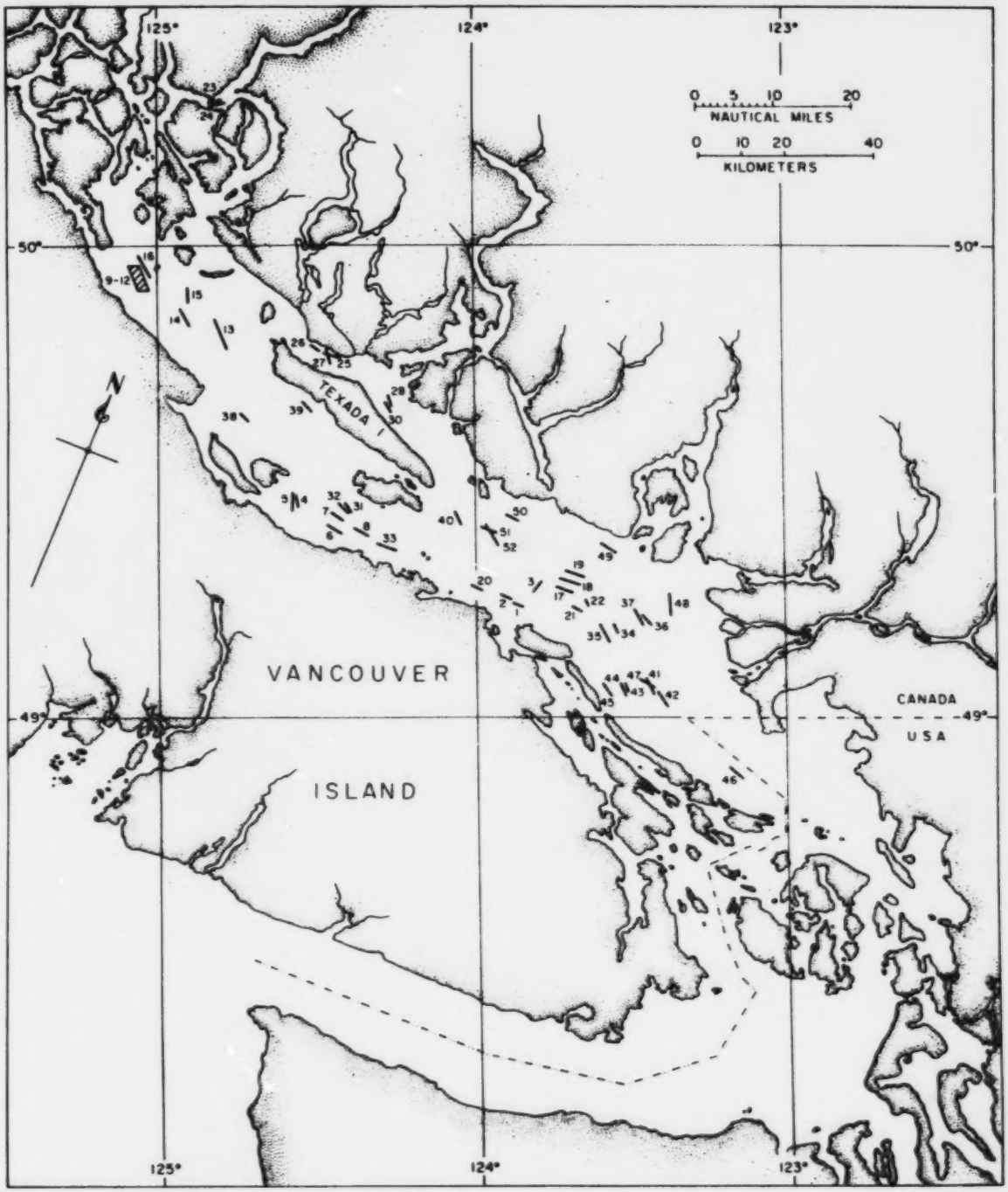

Fig. 1. Set locations using midwater Engel trawl net. G.B. REED, May 25-June 18, 1976.

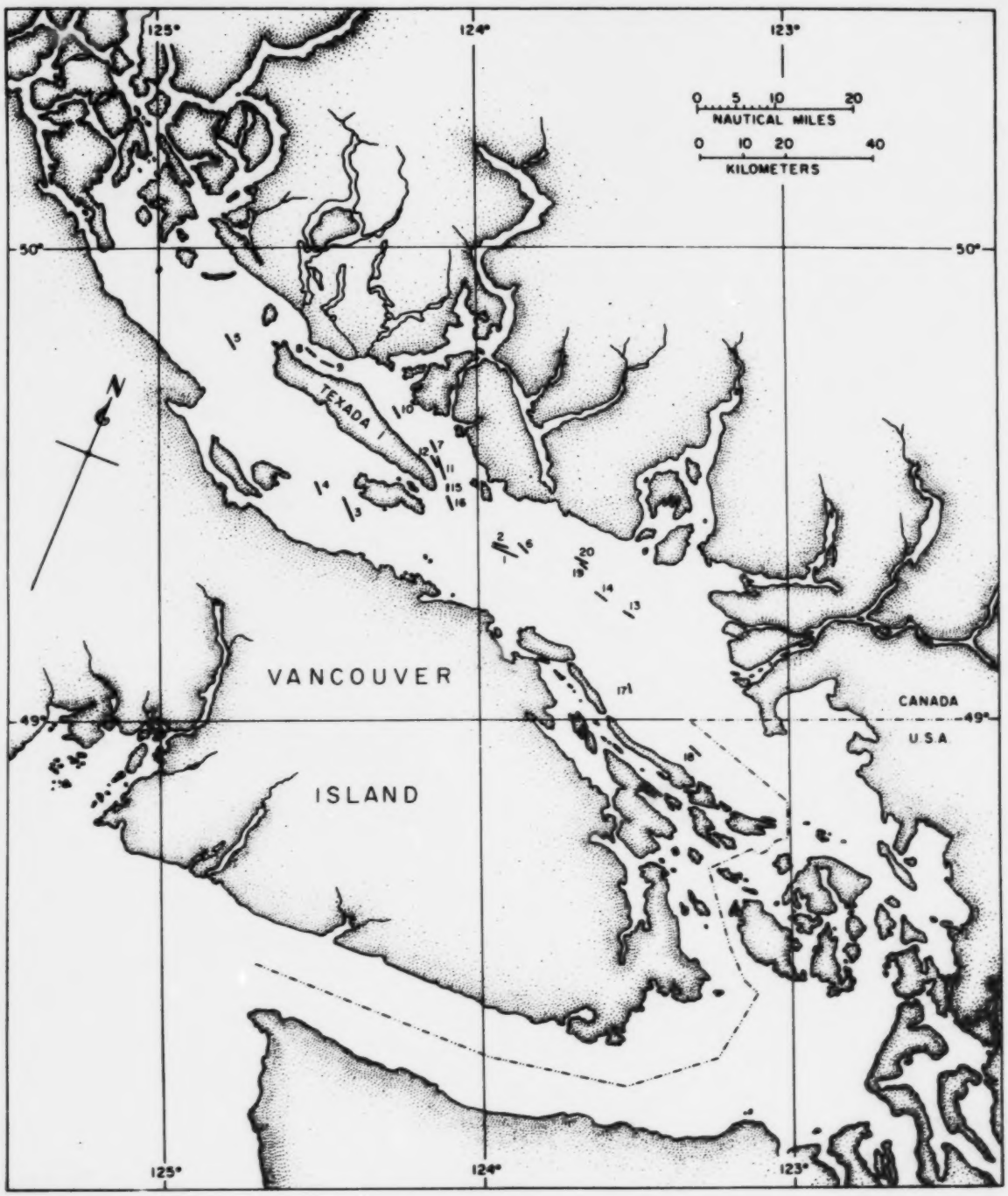

Fig. 2. Set locations using Isaac Kidd plankton trawl net. G.B. REED. May 25-June 18, 1976.

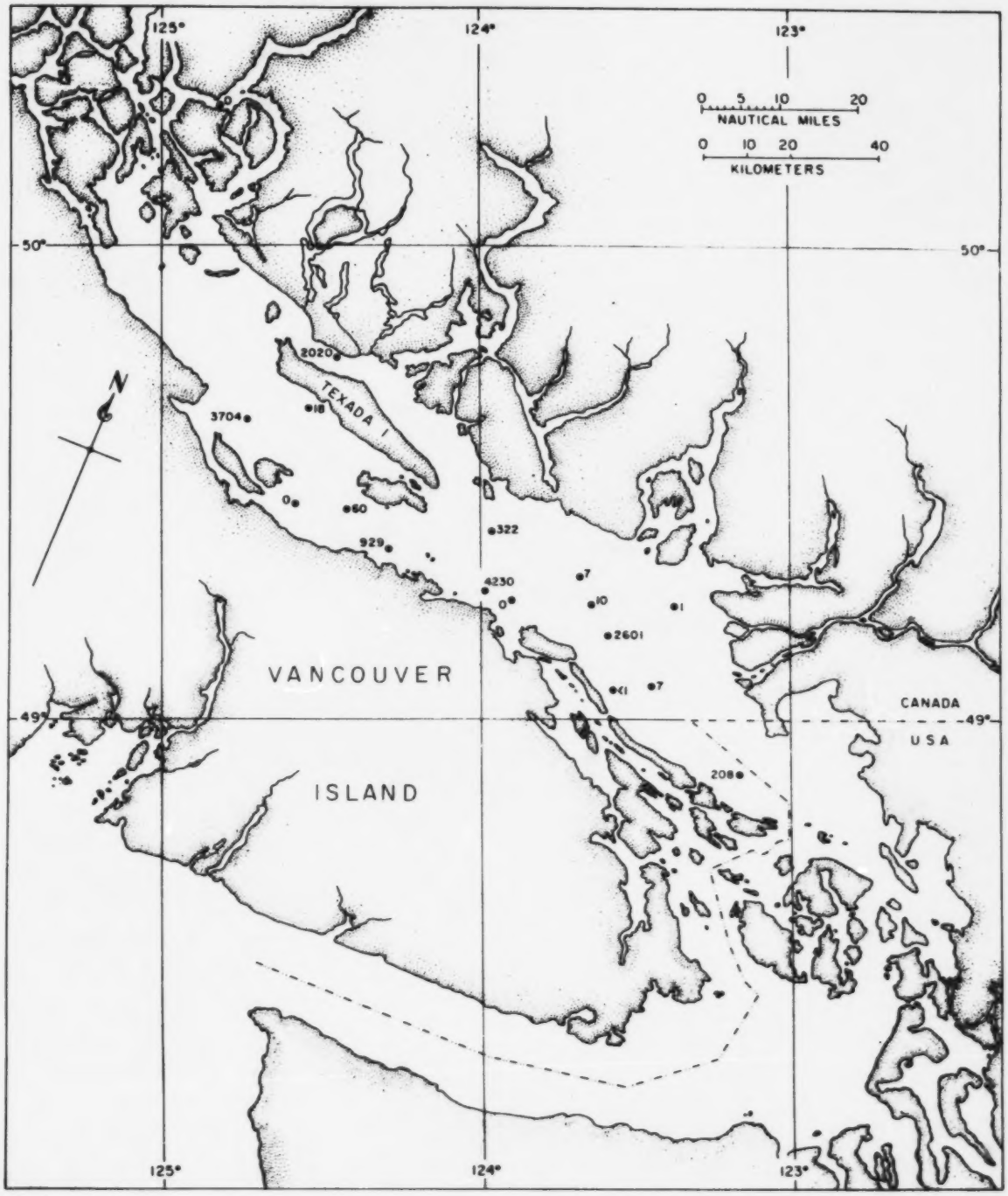

Fig. 3. Pacific hake catch rates (kg/h) above scatter layer. G.B. REED. May 25-June 18, 1976.

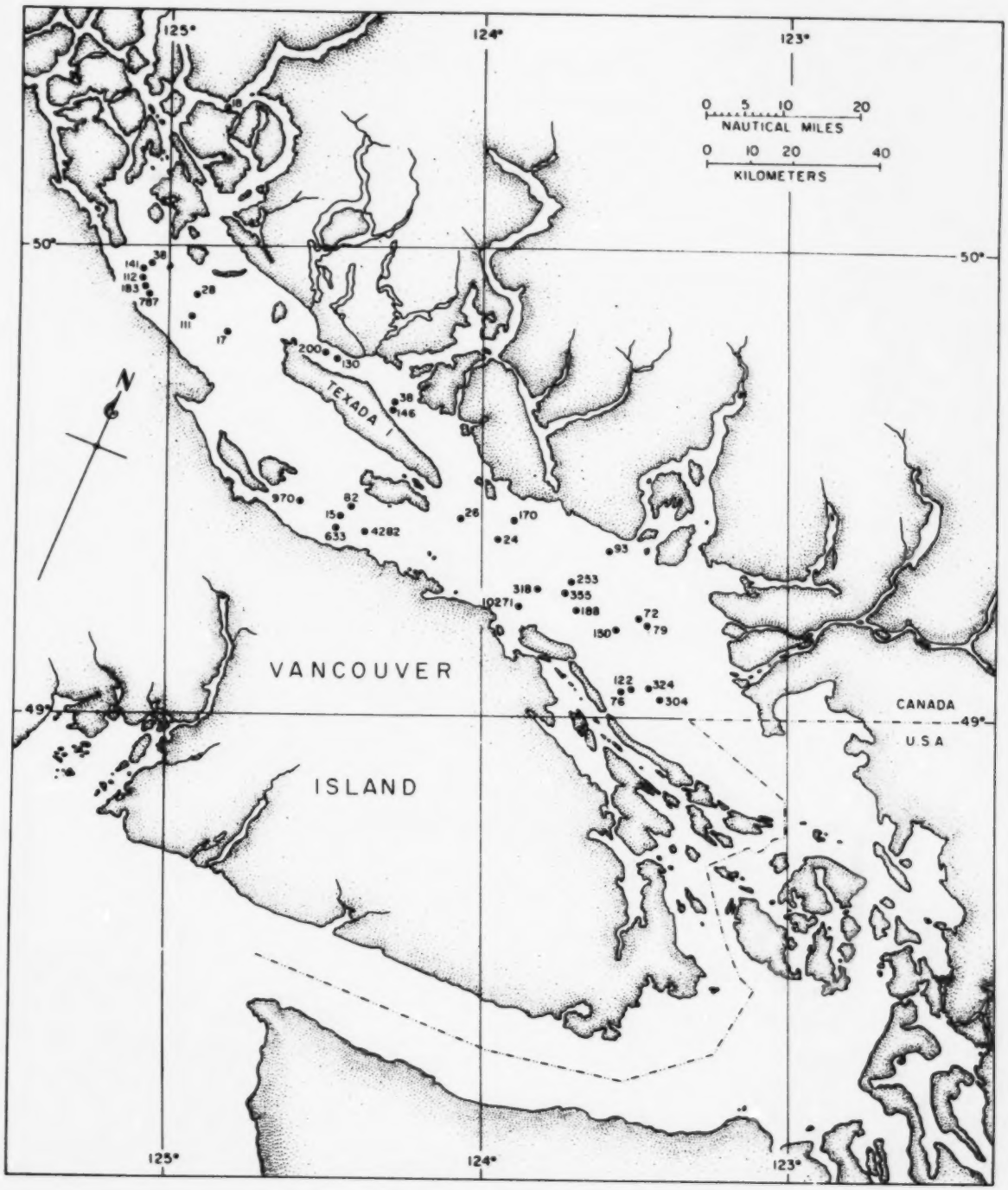

Fig. 4. Pacific hake catch rates (kg/h) within and below scatter layer. G.B. REED. May 25-June 18, 1976.

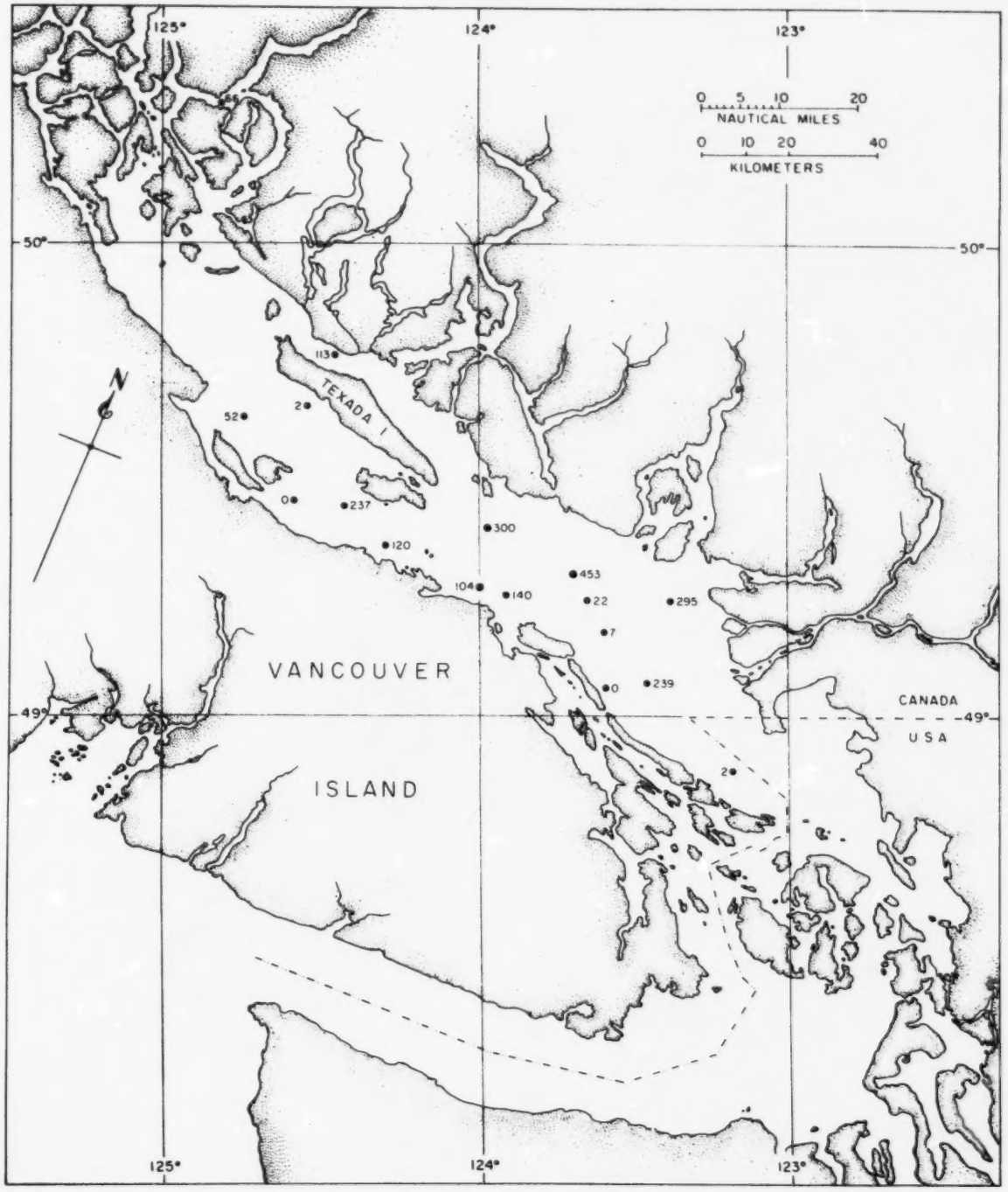

Fig. 5. Walleye pollock catch rates (kg/h) above scatter layer. G.B. REED. May 25-June 18, 1976.

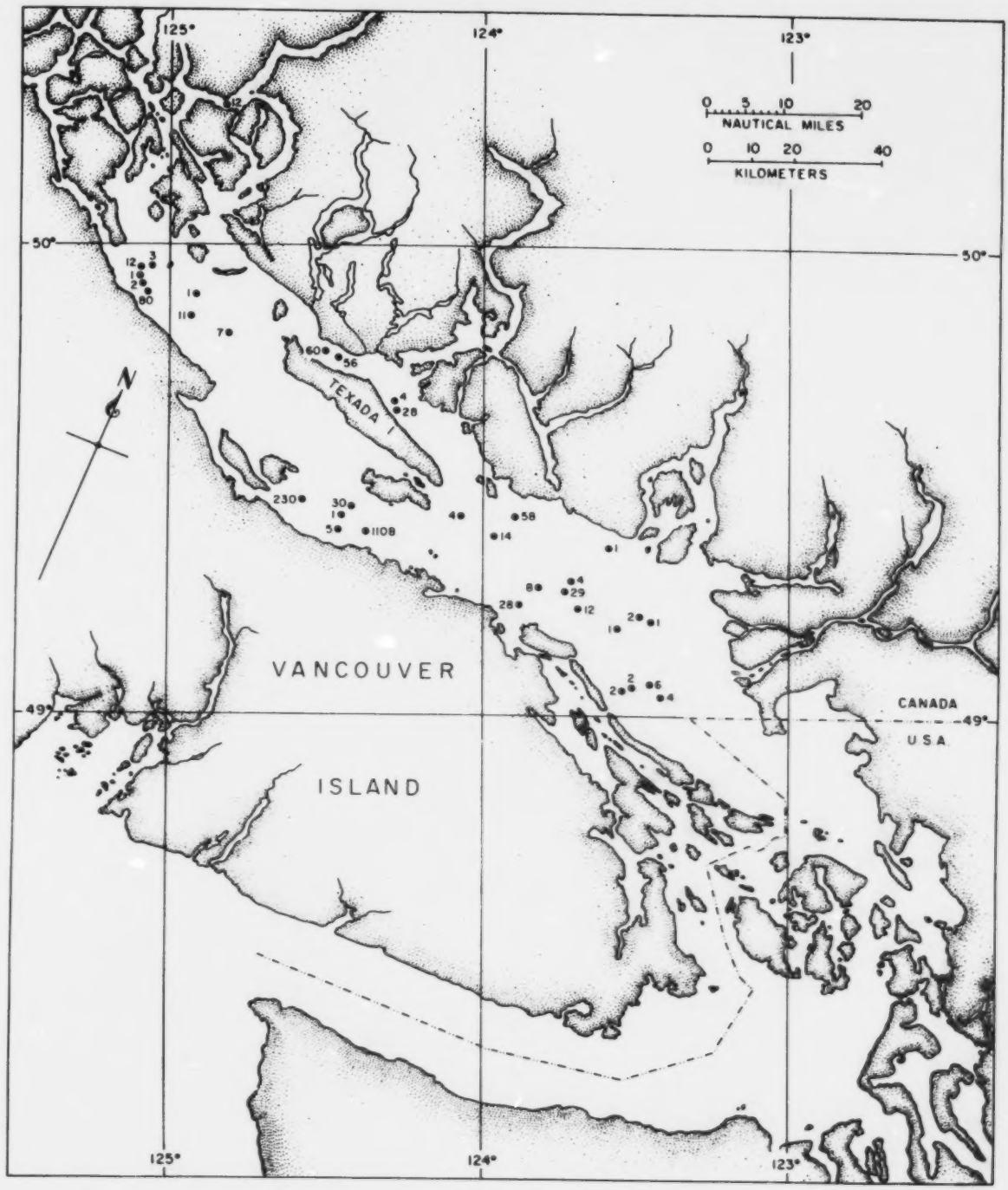

Fig. 6. Walleye pollock catch rates (kg/h) within and below scatter layer. G.B. REED, May 25-June 18, 1976.

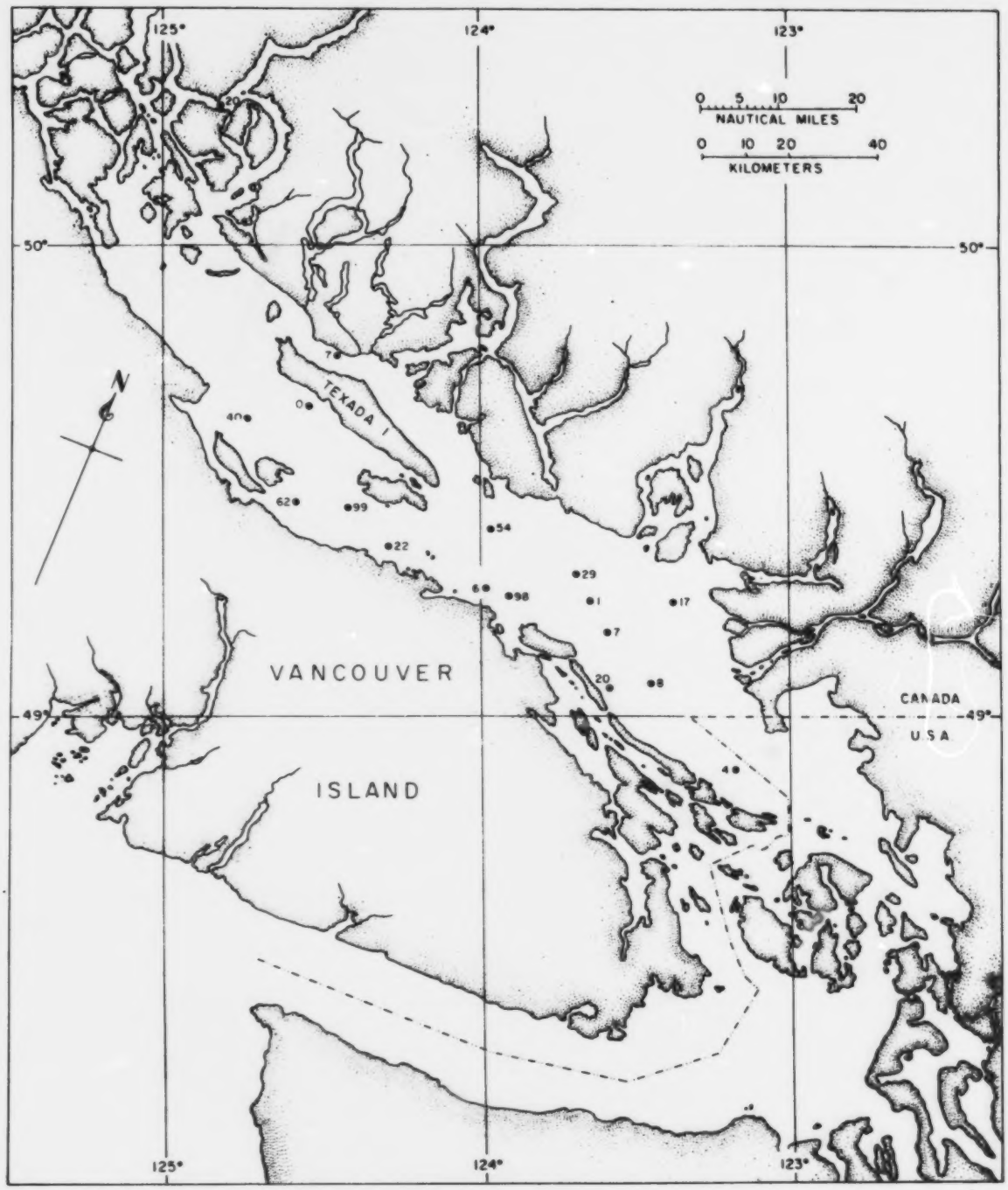

Fig. 7. Spiny dogfish catch rates (kg/h) above scatter layer. G.B. REED, May 25-June 18, 1976.

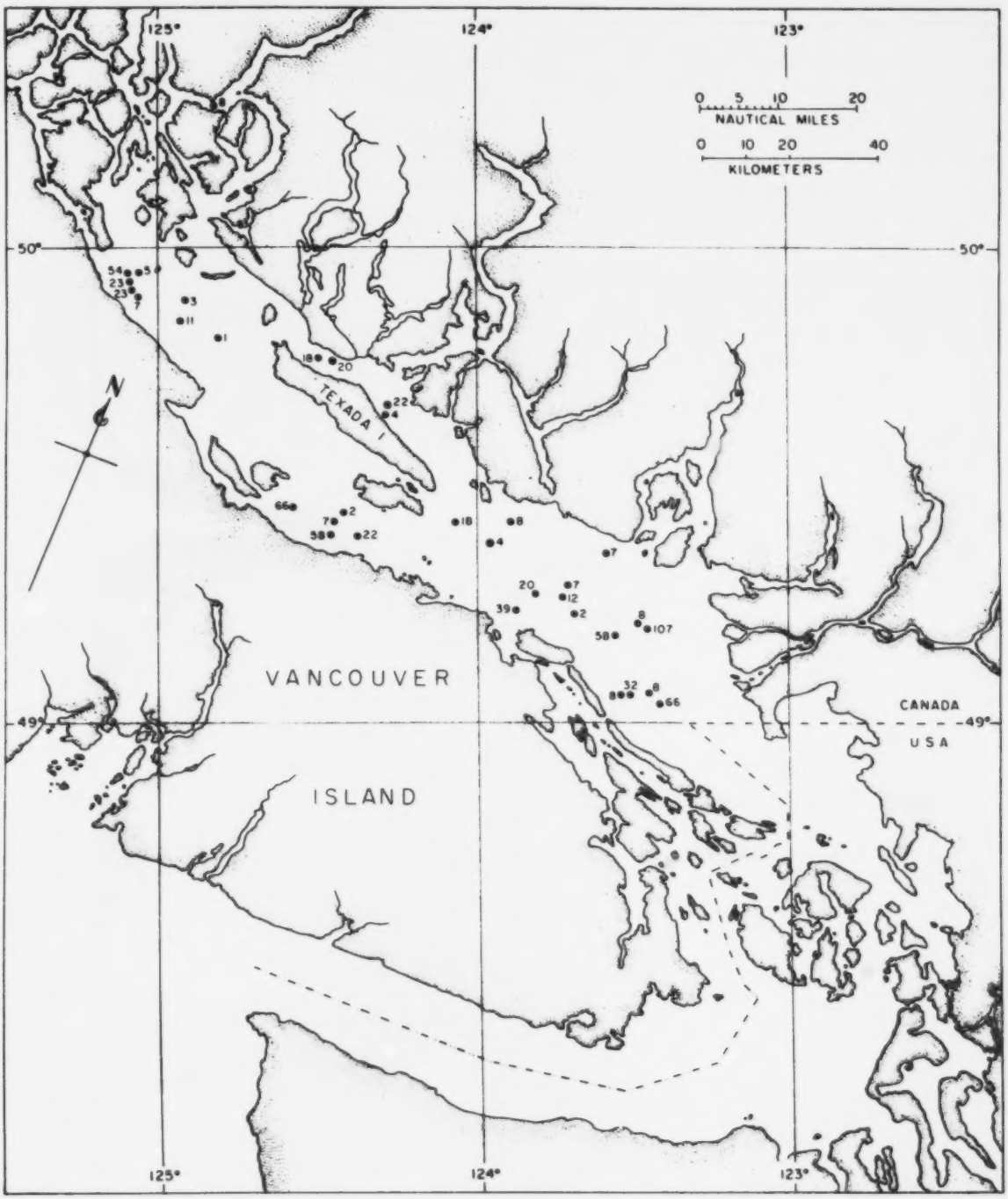

Fig. 8. Spiny dogfish catch rates (kg/h) within and below scatter layer. G.B. REED, May 25-June 18, 1976.

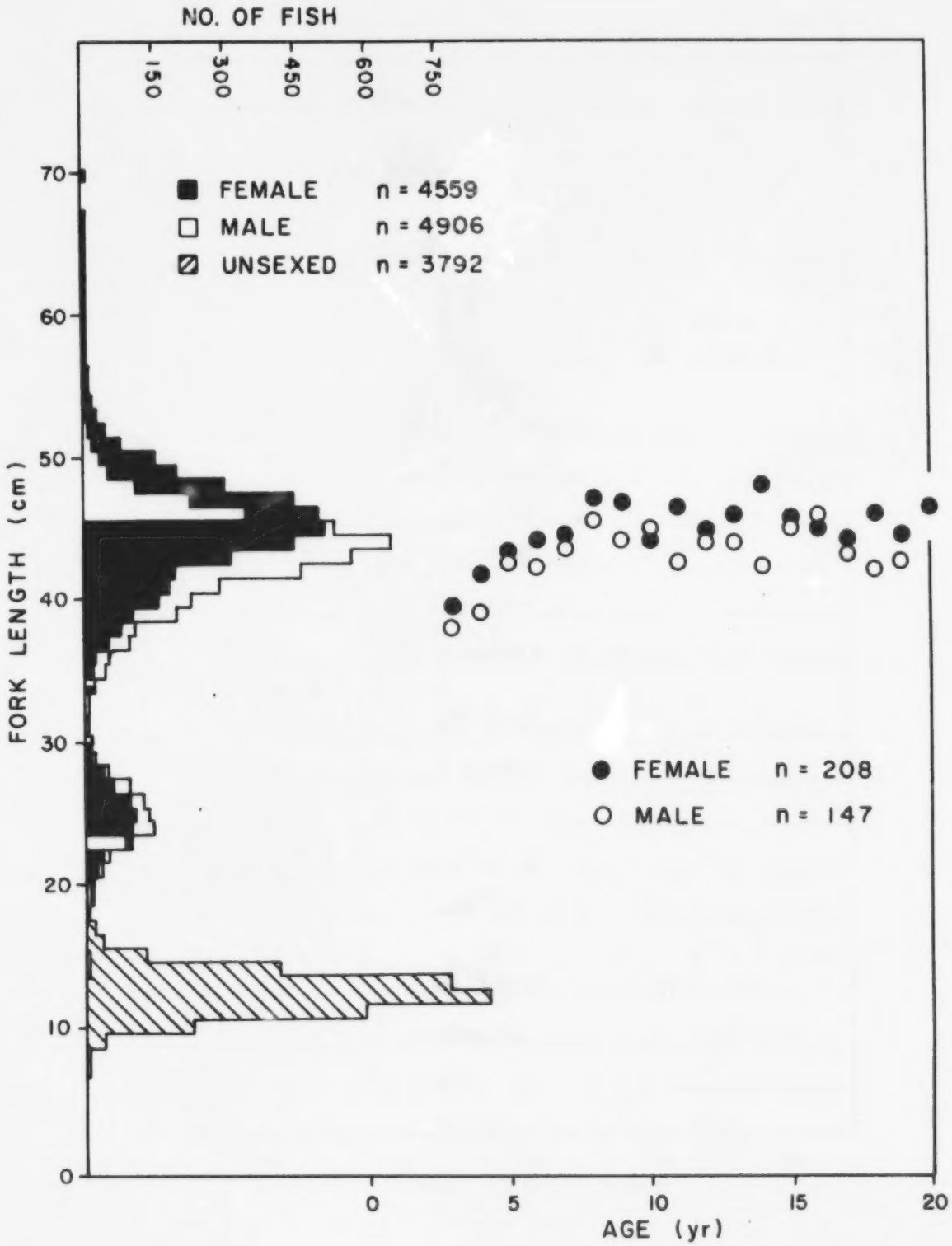

Fig. 9. Pacific hake length frequency histogram and mean length at age plots by sex.

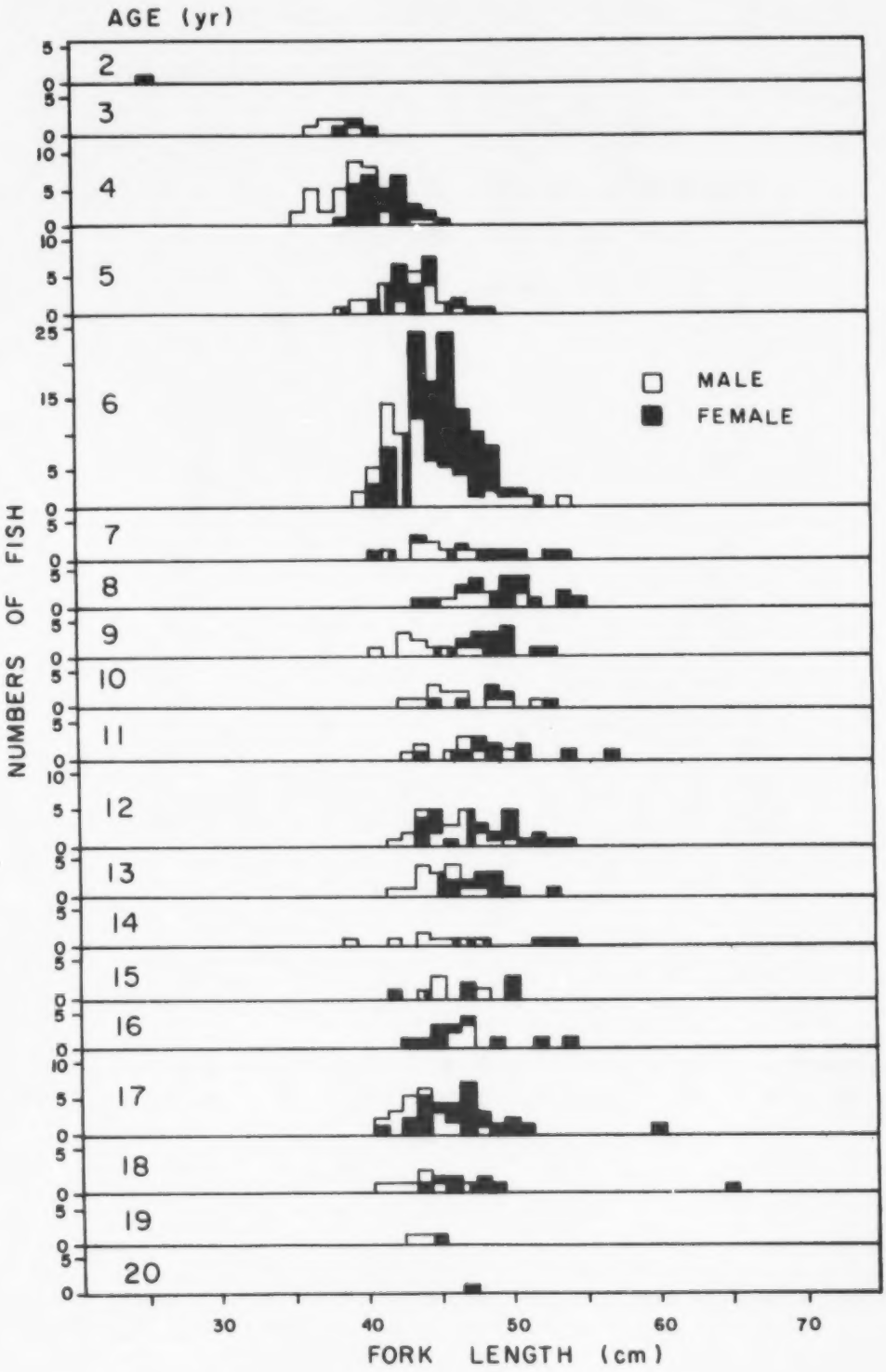

Fig. 10. Pacific hake length frequency by age-class by sex for sets 12 and 35.

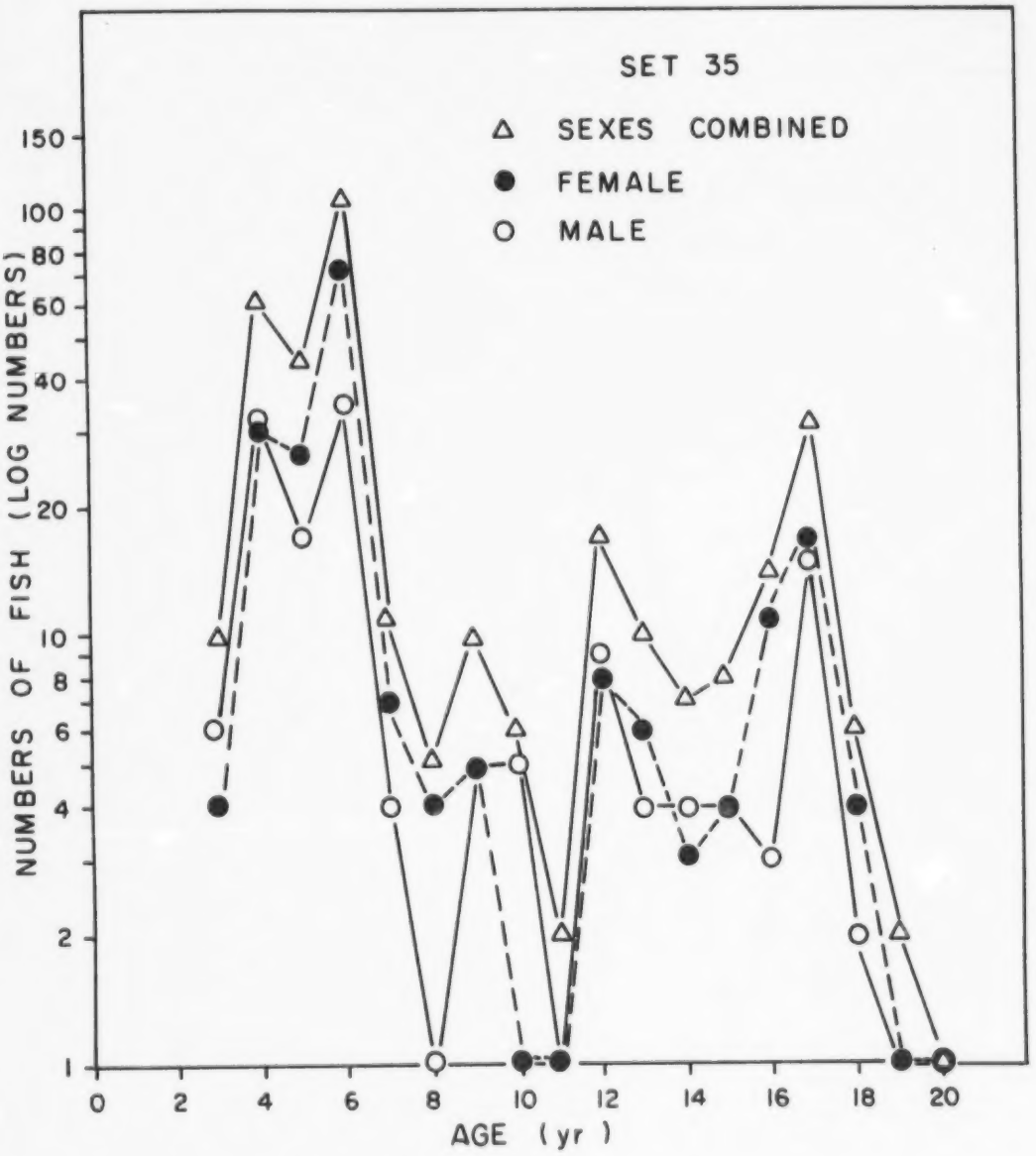

Fig. 11. Pacific hake catch curve, Set 35, Thrasher Rock area (refer to Table 3).

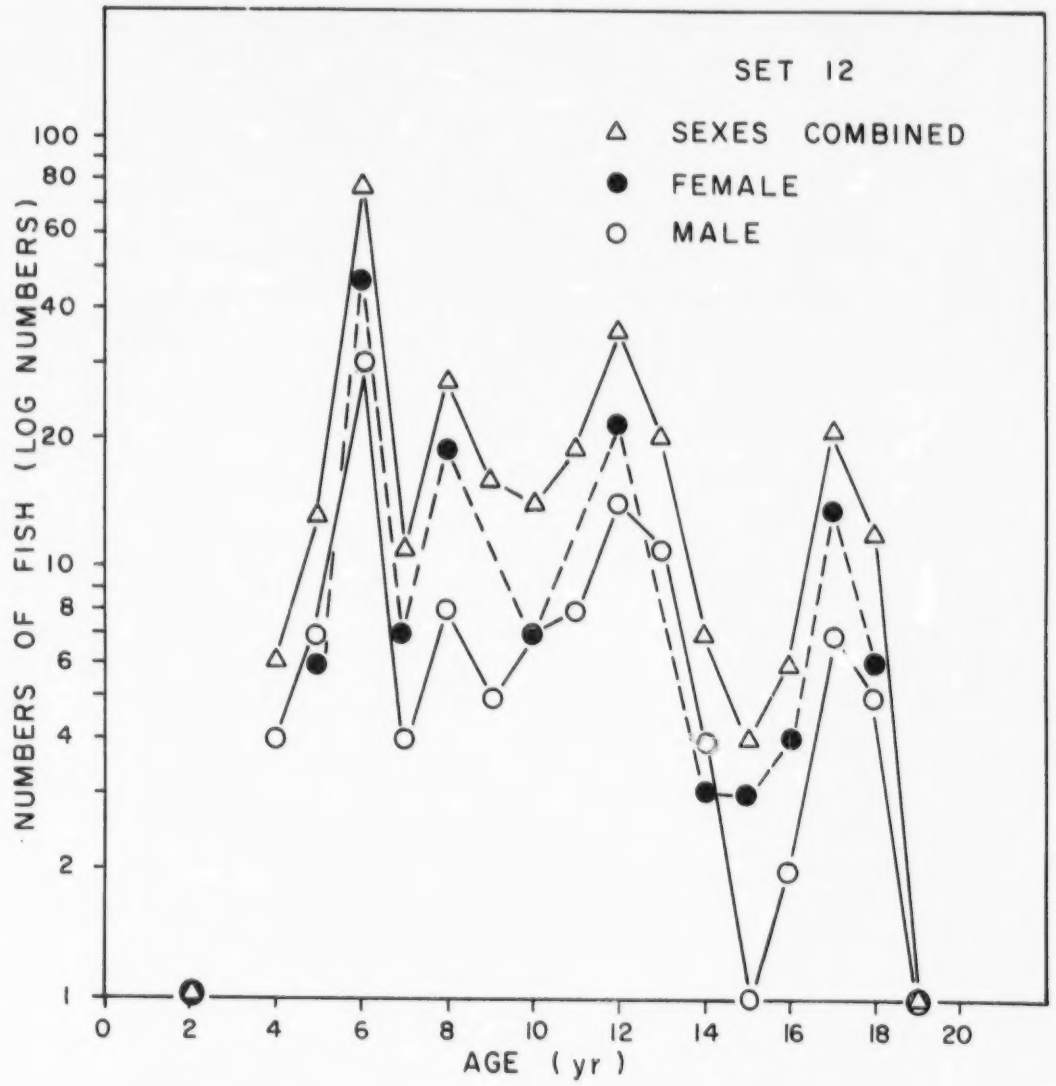

Fig. 12. Pacific hake catch curve, Set 12, Mitlenatch Island area. (Refer to Table 4).

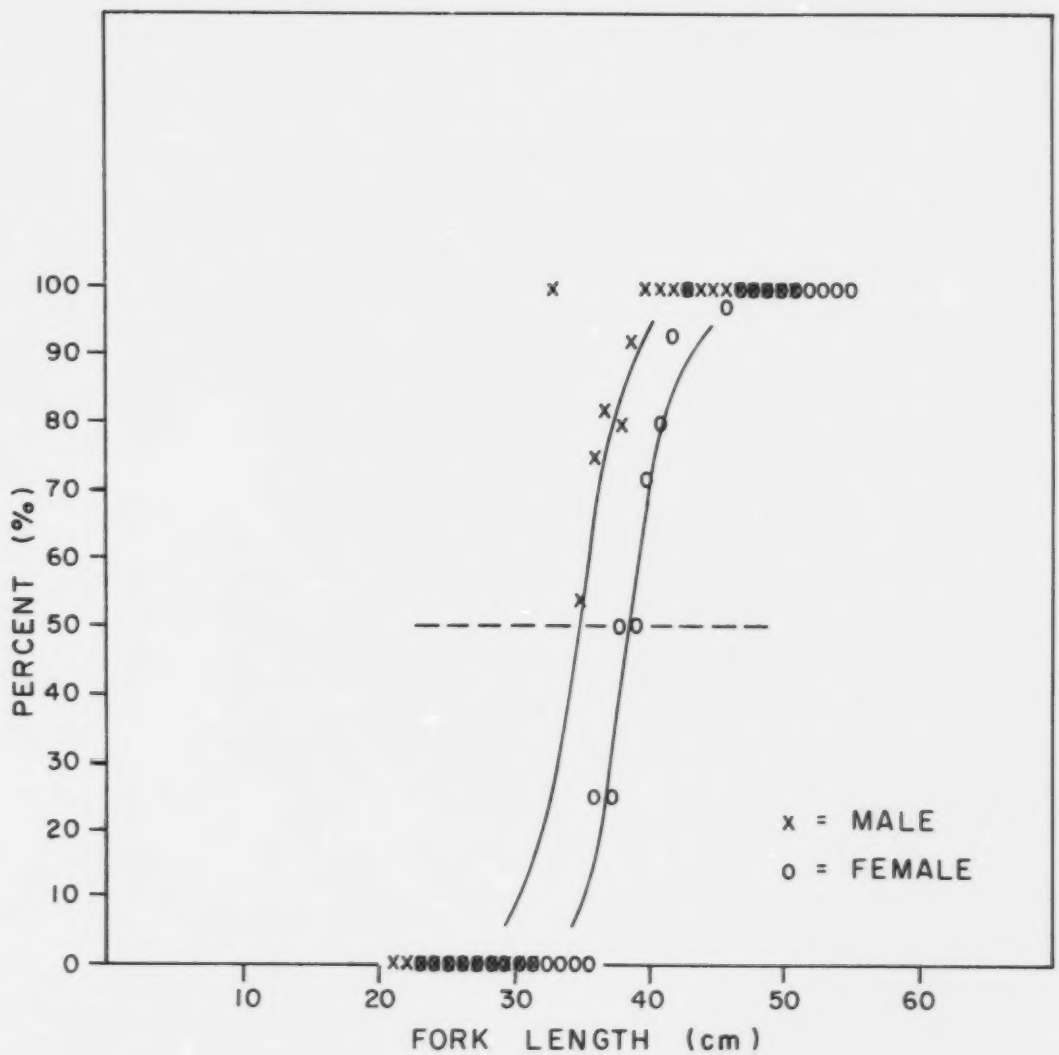

Fig. 13. Length at 50% maturity by sex for Pacific hake.

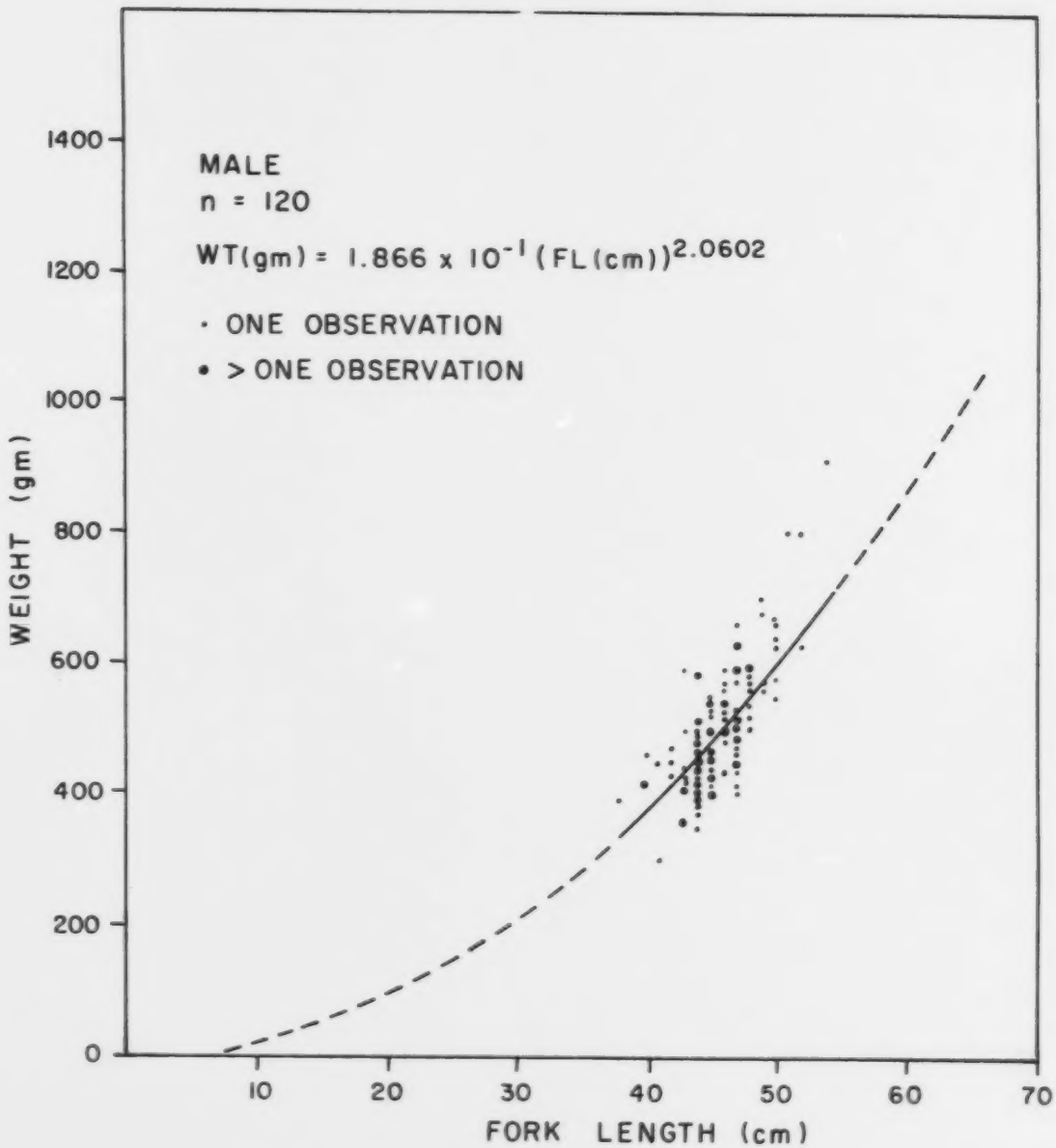

Fig. 14. Length-weight relationship for male Pacific hake.

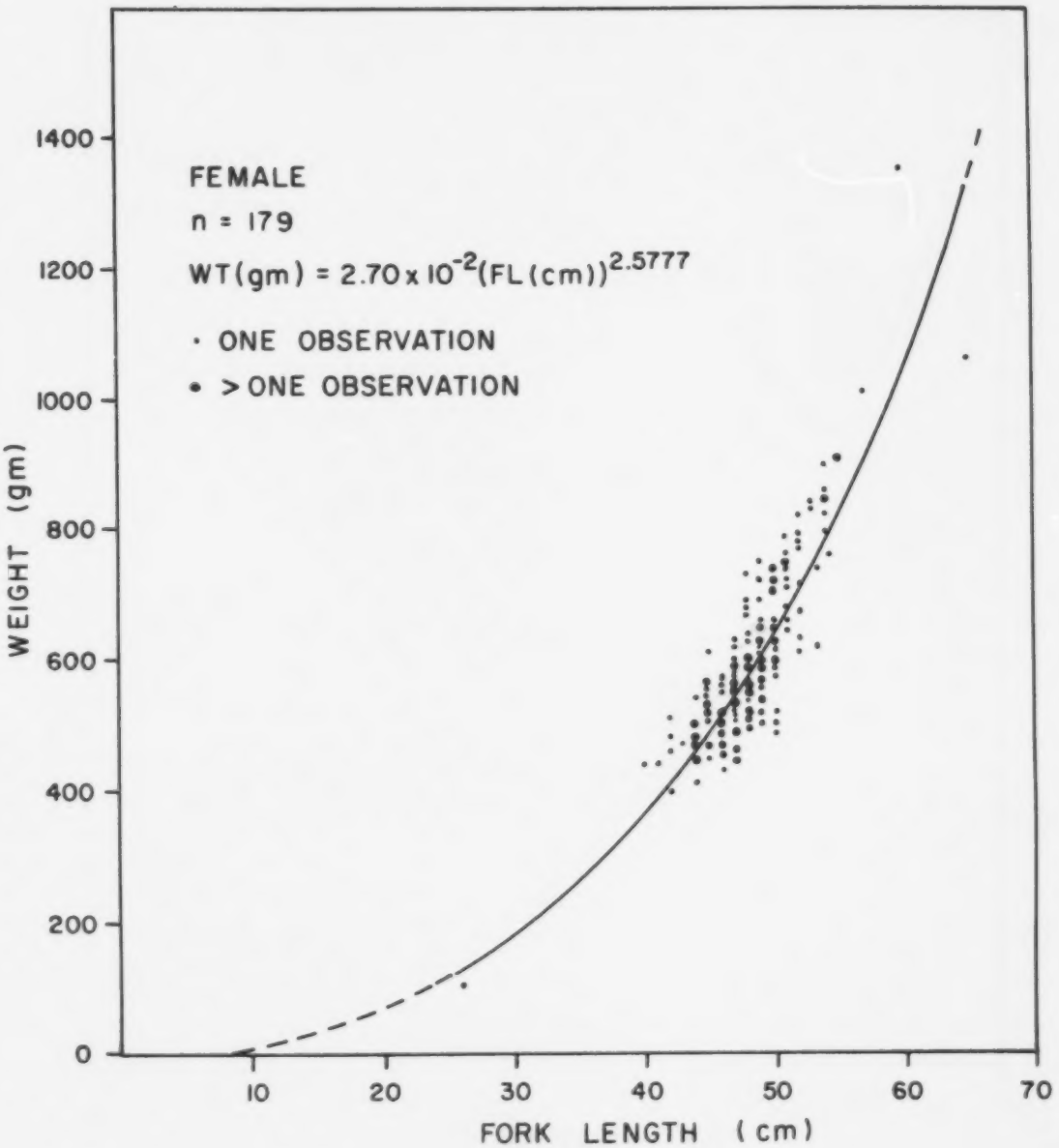

Fig. 15. Length-weight relationship for female Pacific hake.

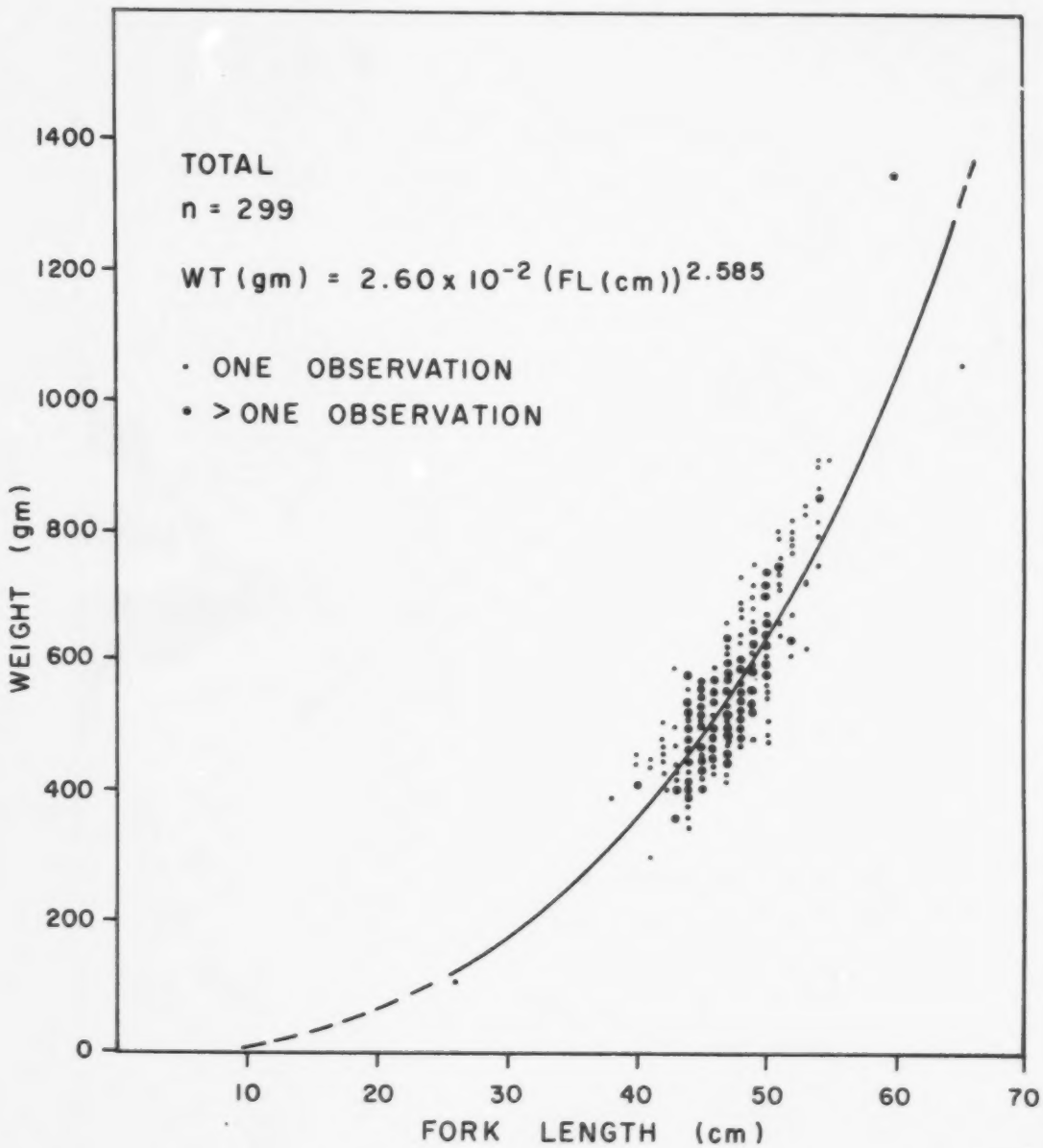

Fig. 16. Length-weight relationship for both male and female Pacific hake.

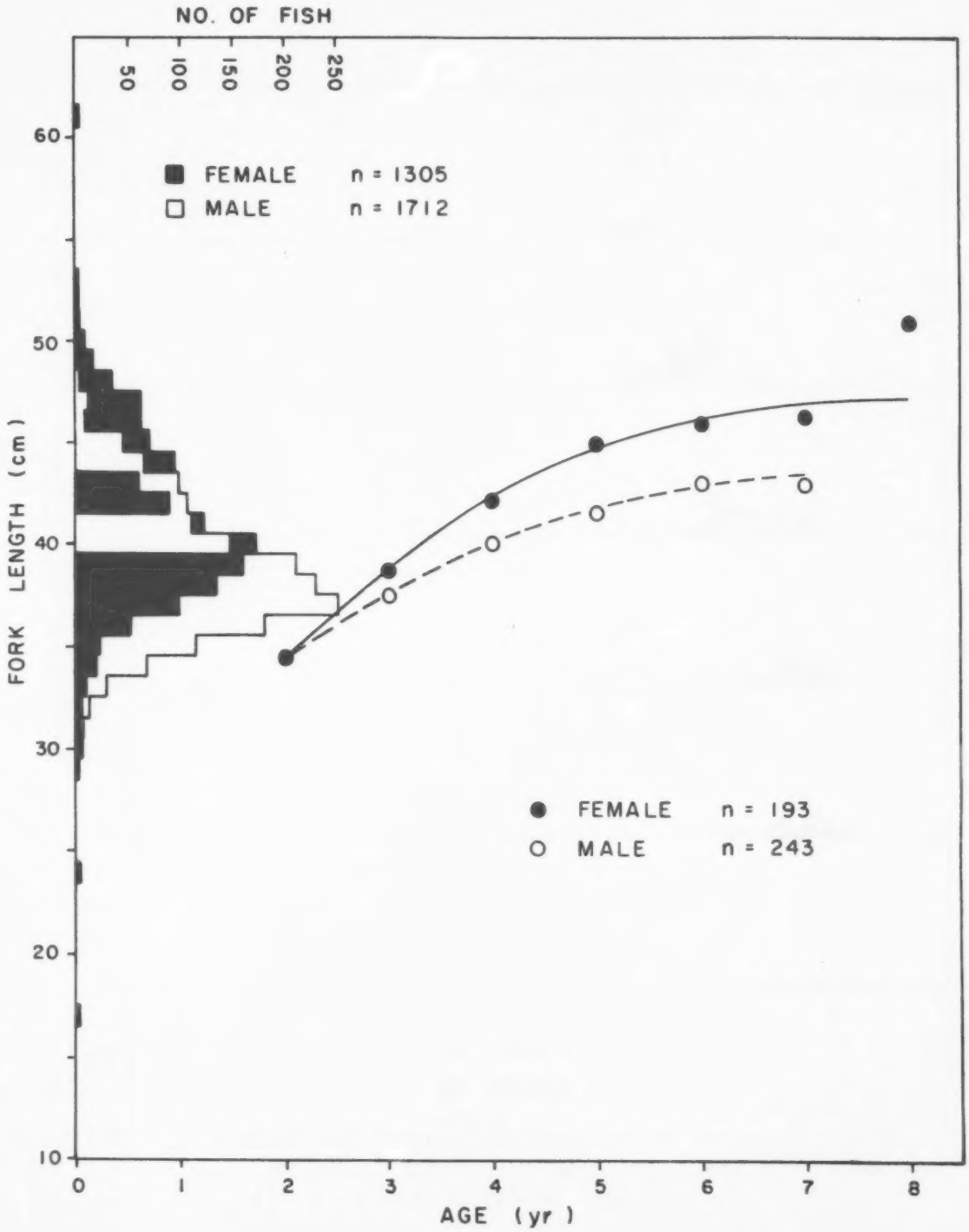

Fig. 17. Walleye pollock length frequency histograms and growth curve by sex.

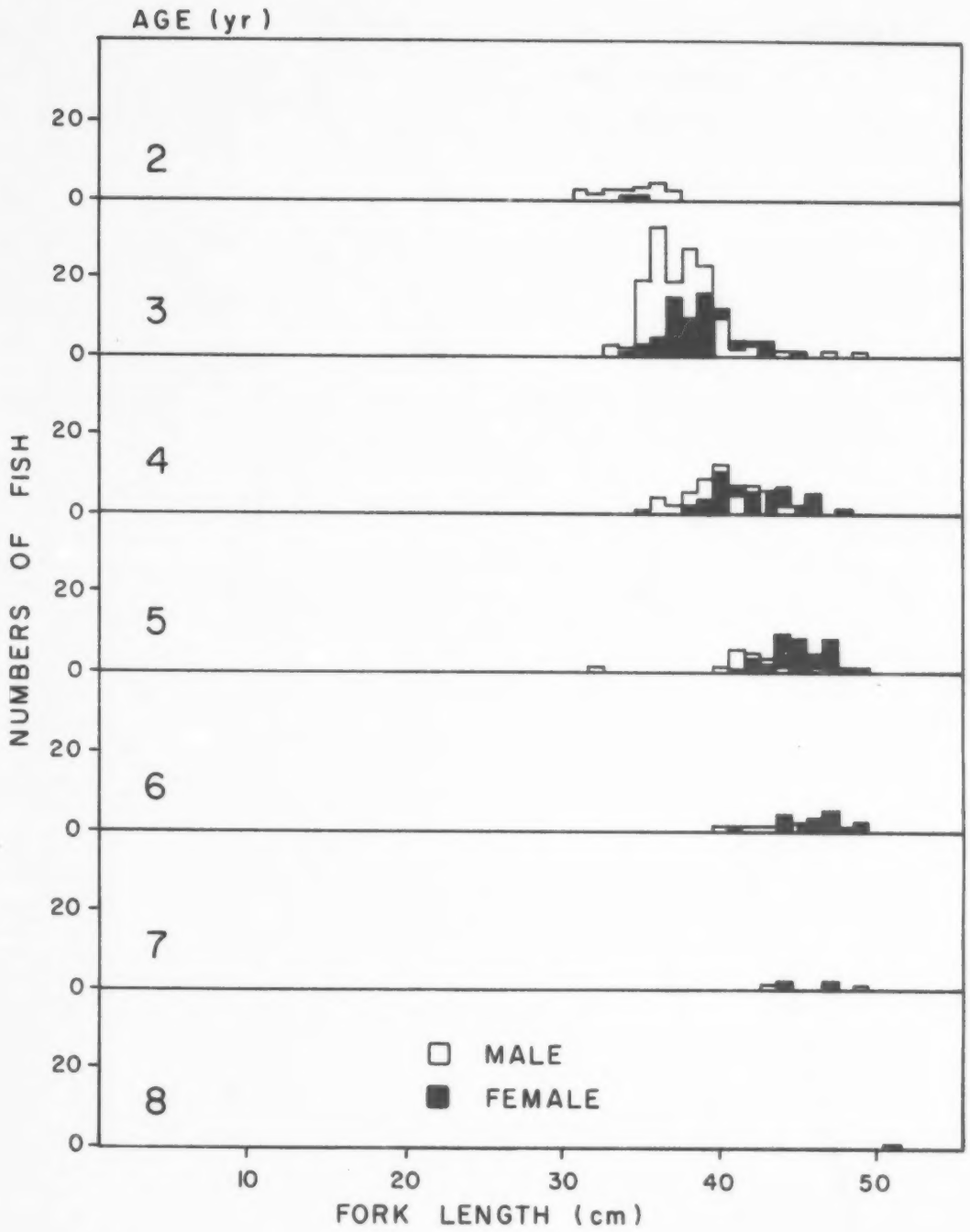

Fig. 18. Walleye pollock length frequency by age-class by sex for sets 8 and 19.

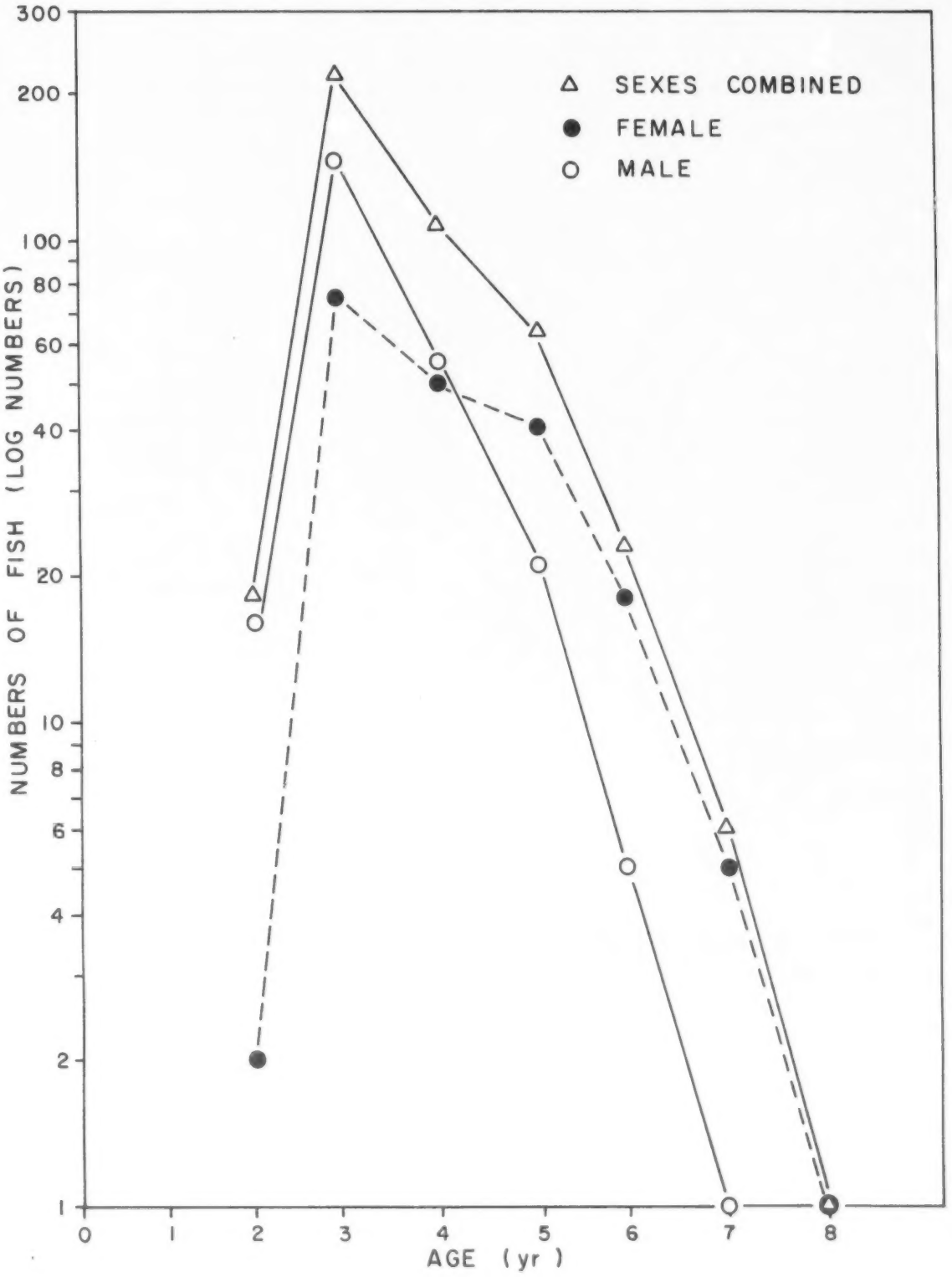

Fig. 19. Walleye pollock catch curve, sets 8 and 19. (Refer to Table 9.)

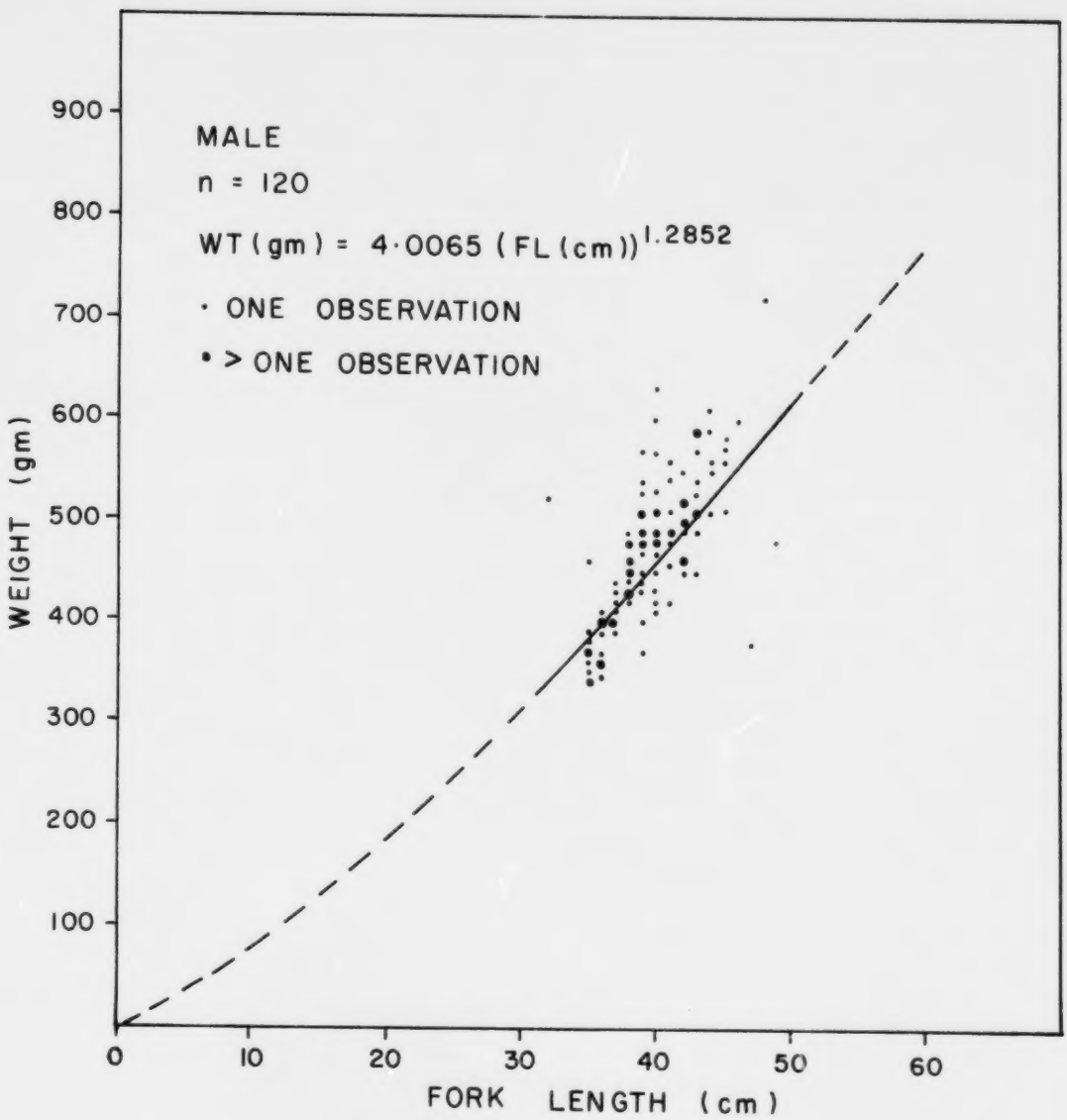

Fig. 20. Length-weight relationship for male walleye pollock.

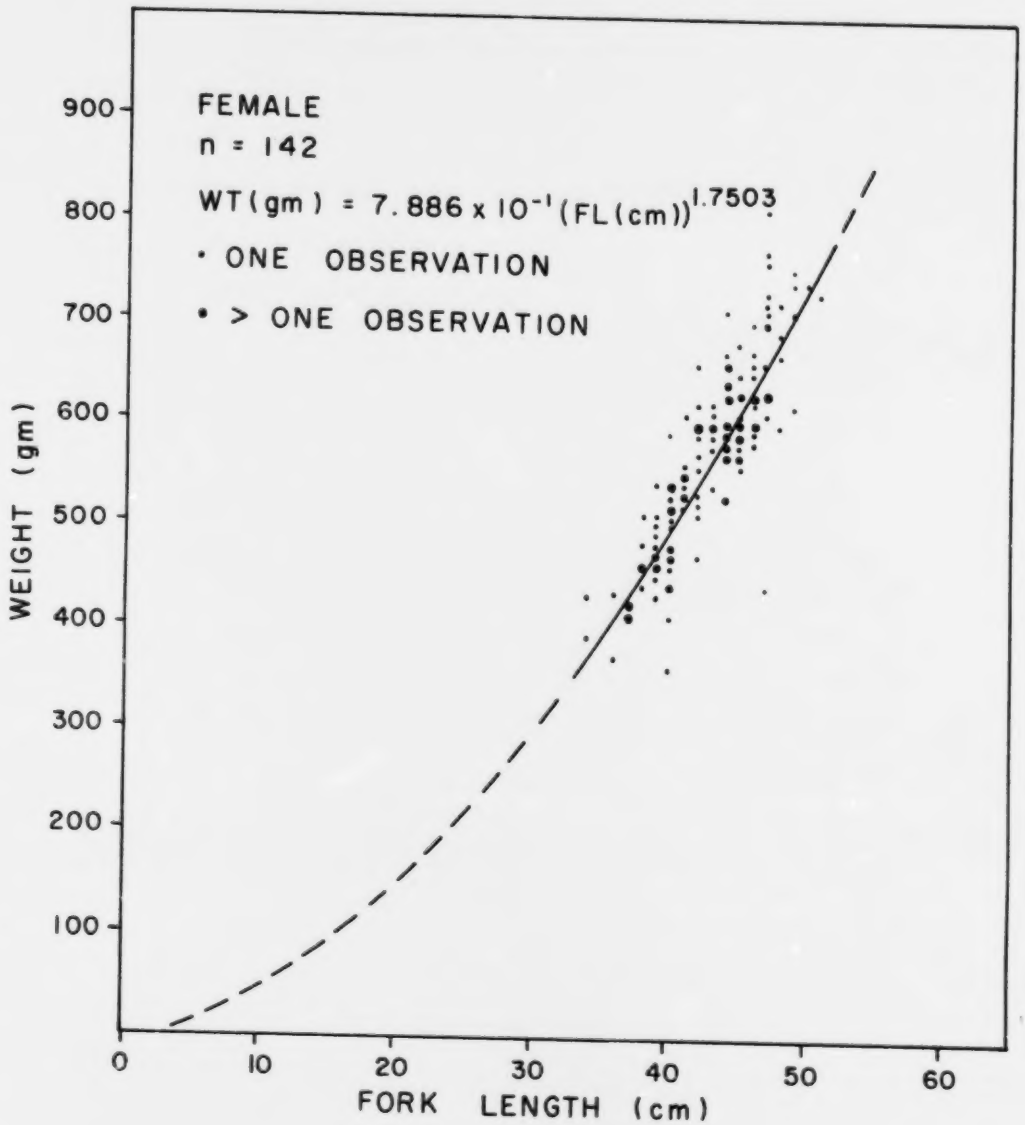

Fig. 21. Length-weight relationship for female walleye pollock.

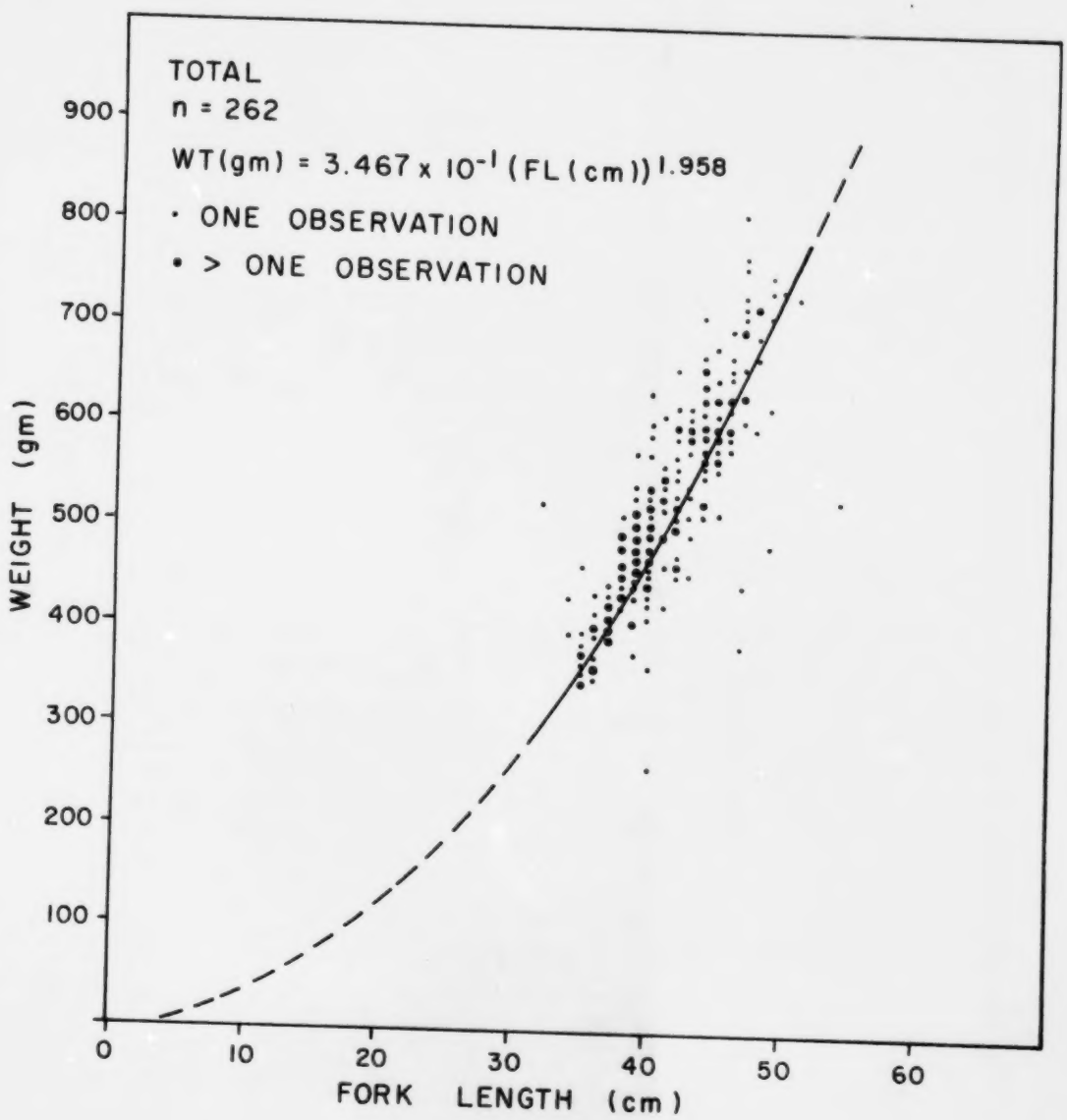

Fig. 22. Length-weight relationship for both male and female walleye pollock.

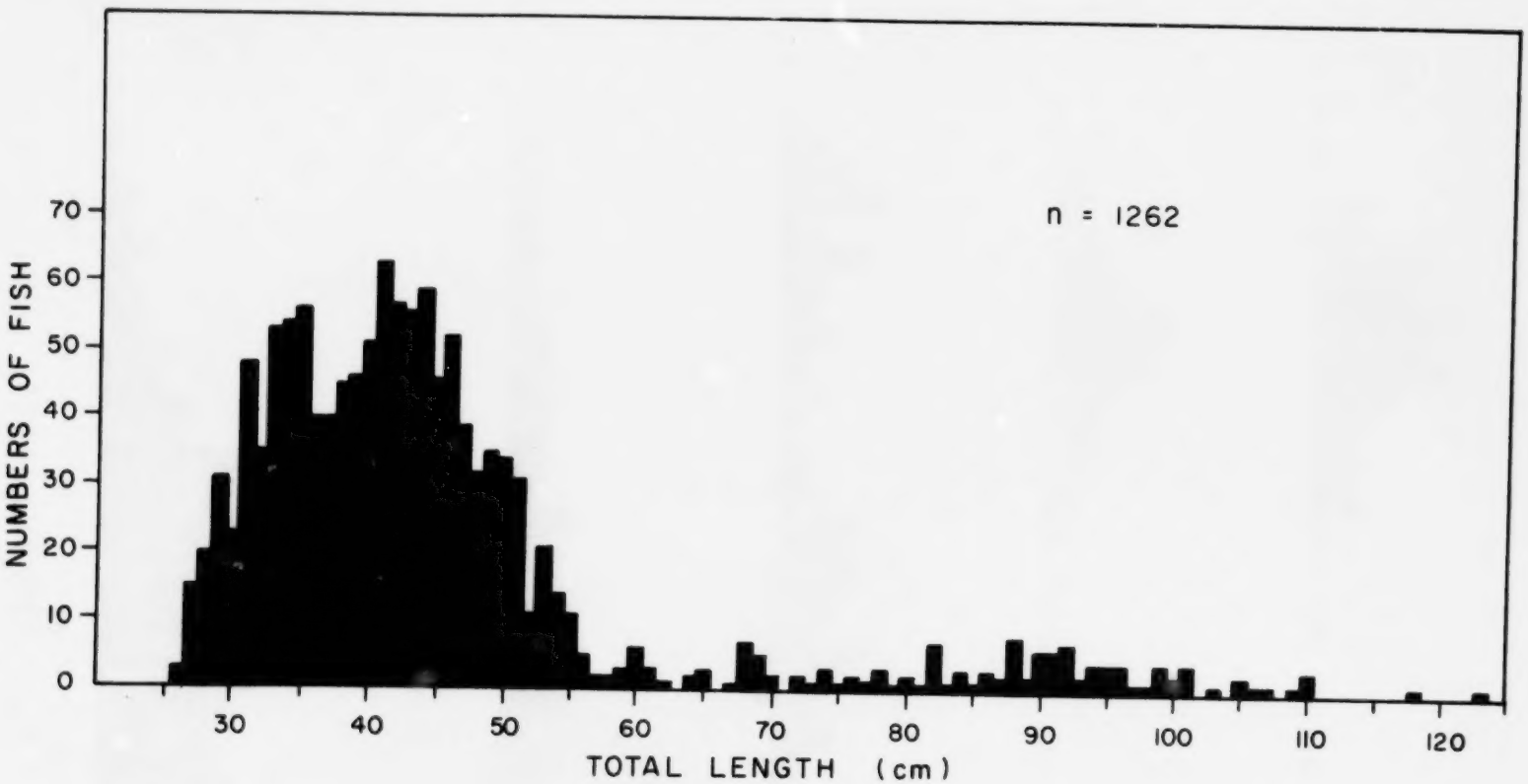

Fig. 23. Spiny dogfish length frequency histogram for all depths trawled in the Strait of Georgia.

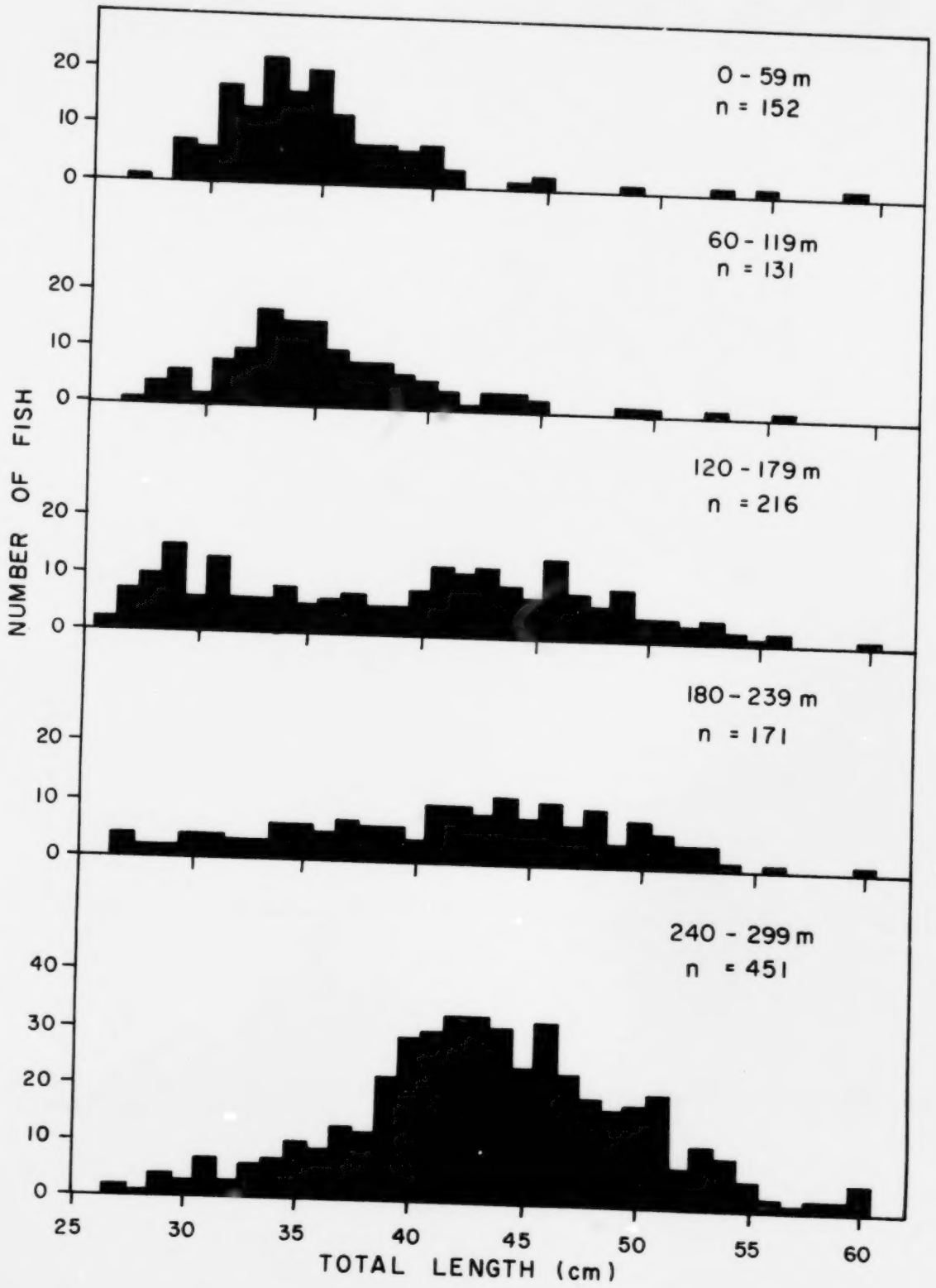

Fig. 24. Length frequency of juvenile spiny dogfish (≤ 60 cm) by depth interval.

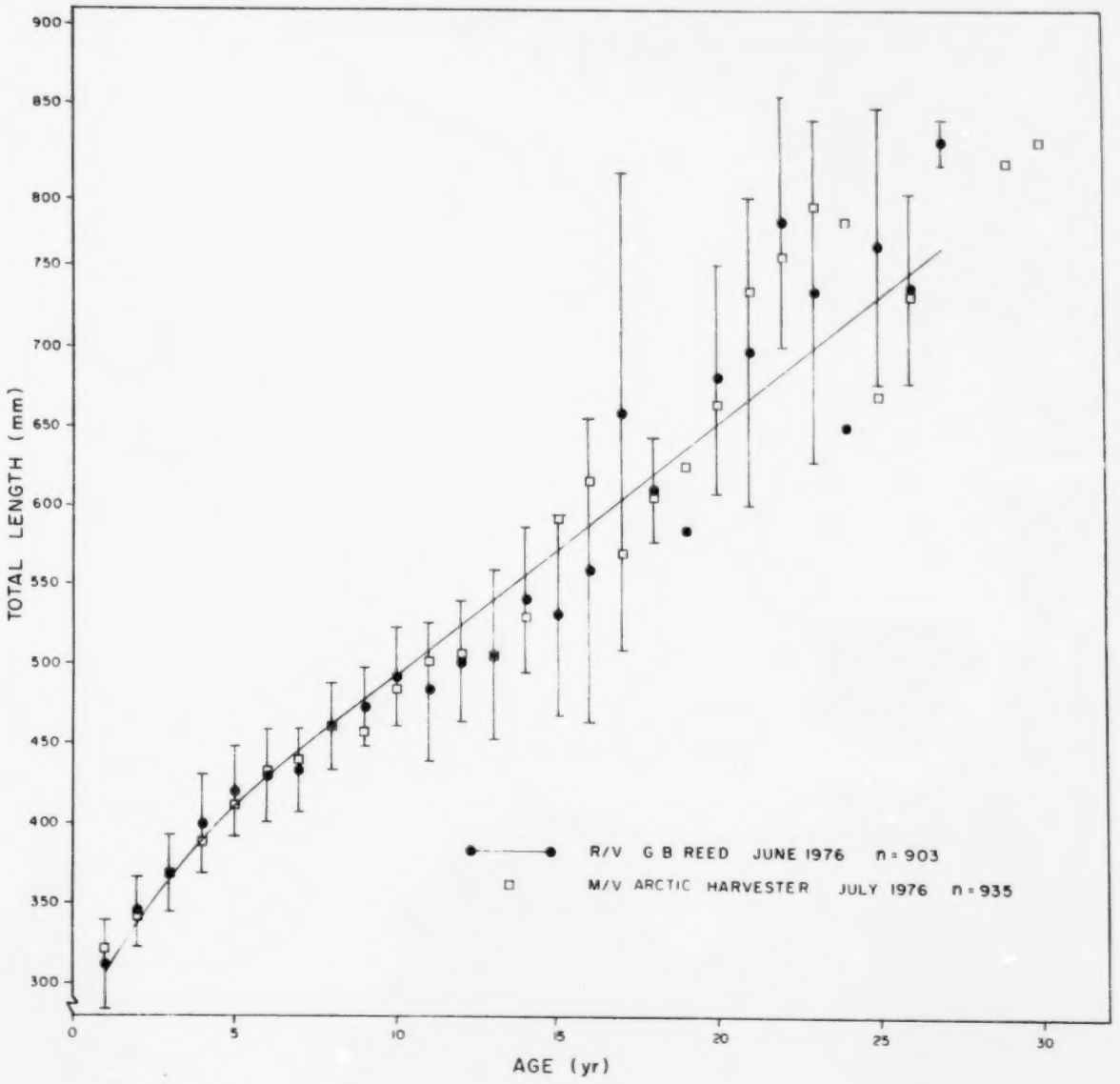

Fig. 25. Comparison of growth curve for spiny dogfish sampled in June 1976 with the sample taken in July 1976.

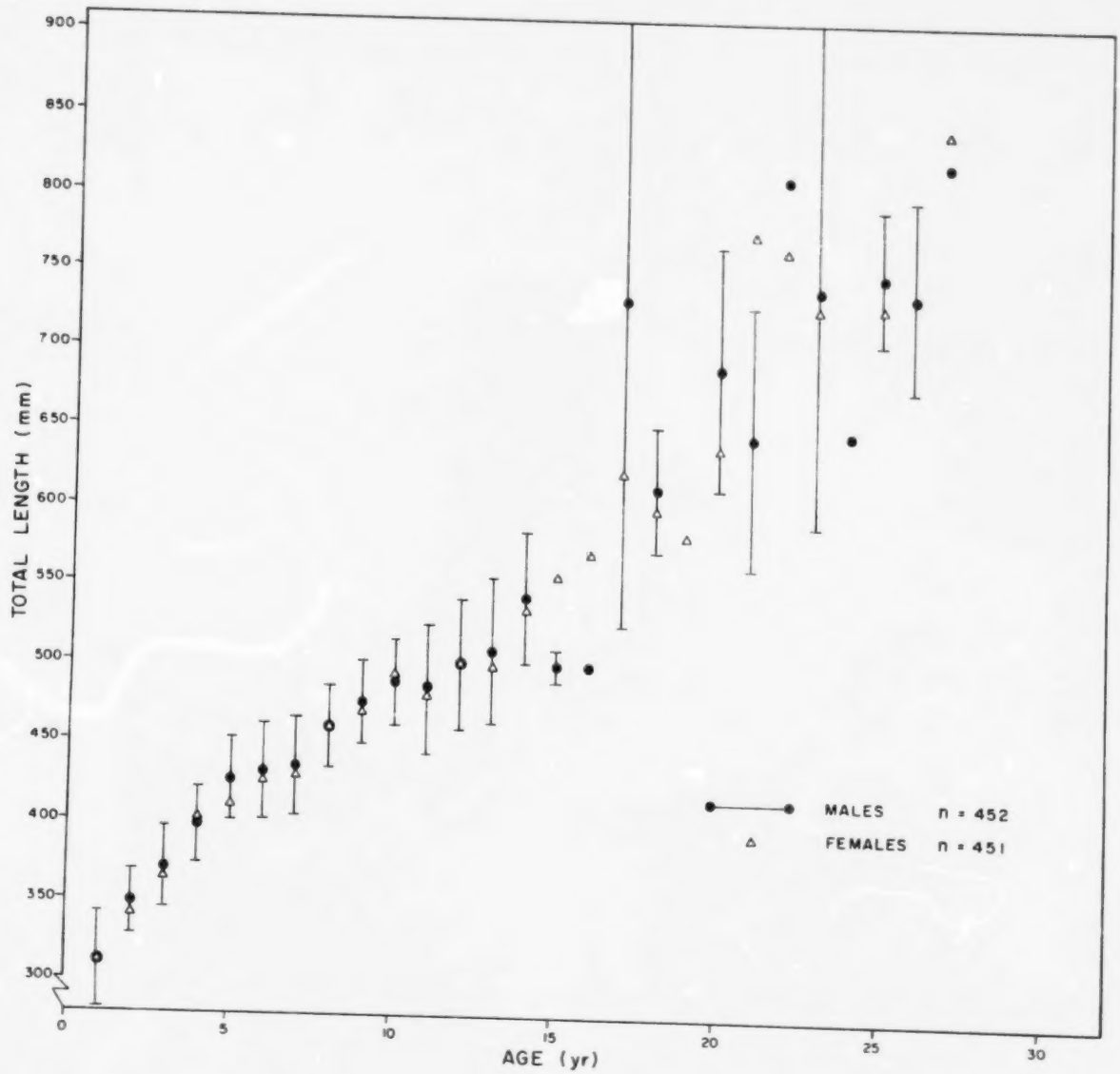

Fig. 26. Mean length at age plot for spiny dogfish by sex.

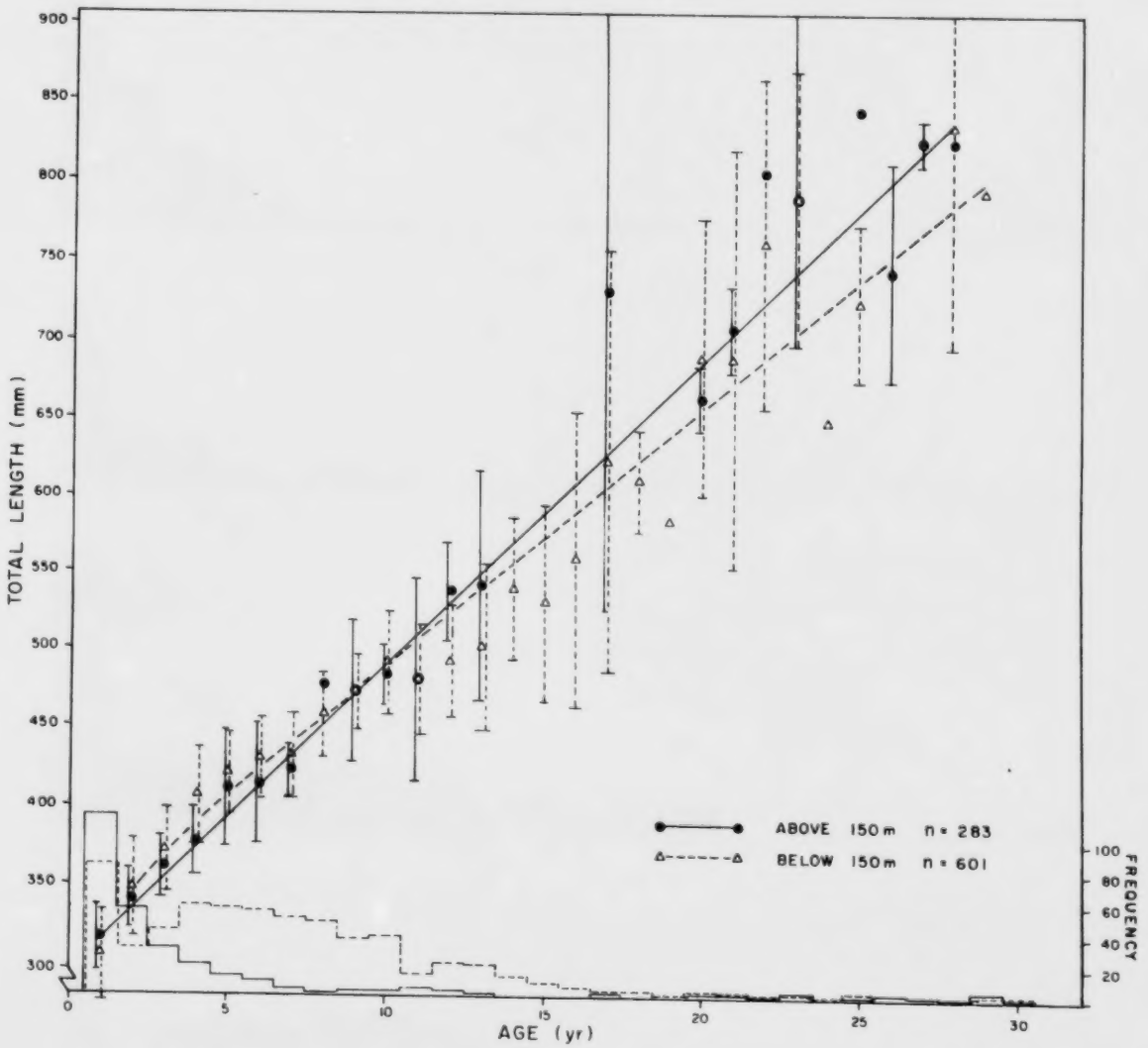

Fig. 27. Growth curves and length frequency histograms for spiny dogfish above and below 150 m depth from the Strait of Georgia, May 25-June 18, 1976.

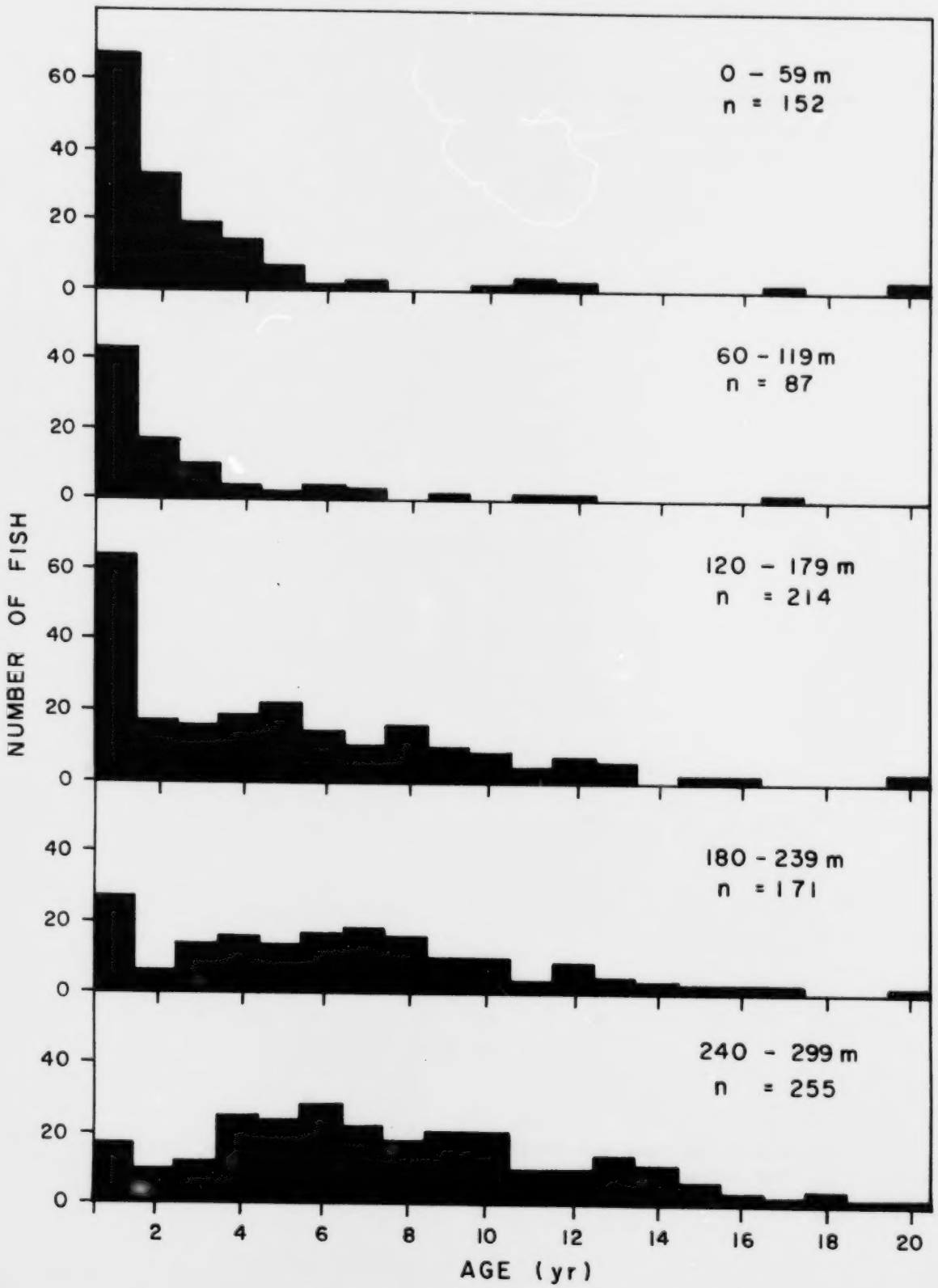

Fig. 28. Age frequency of spiny dogfish by depth interval.

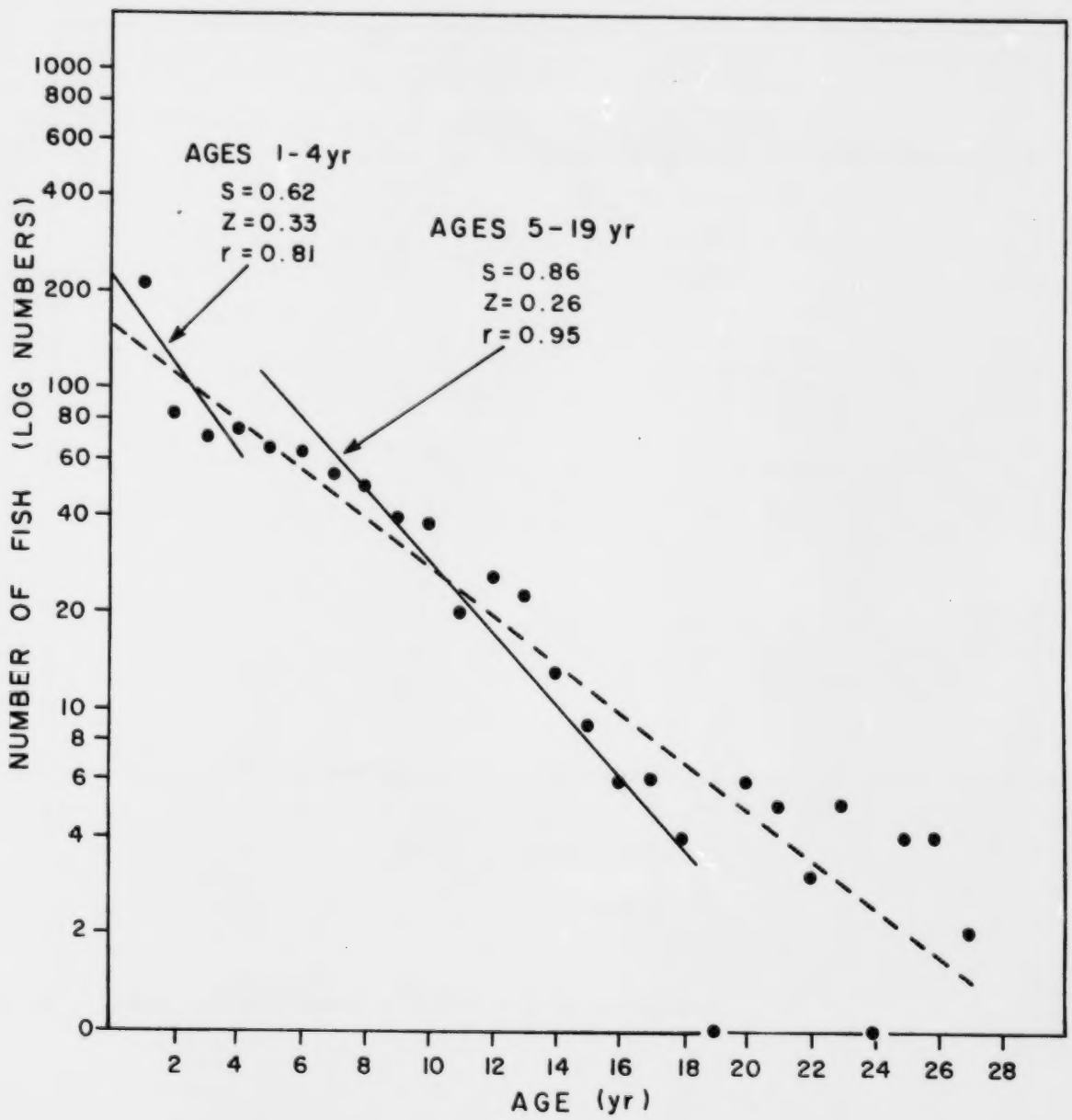

Fig. 29. Spiny dogfish catch curve. The slopes for each age group were determined using simple linear regression. Mortality estimates were determined from Jackson (1939). (Refer to Table 14.)

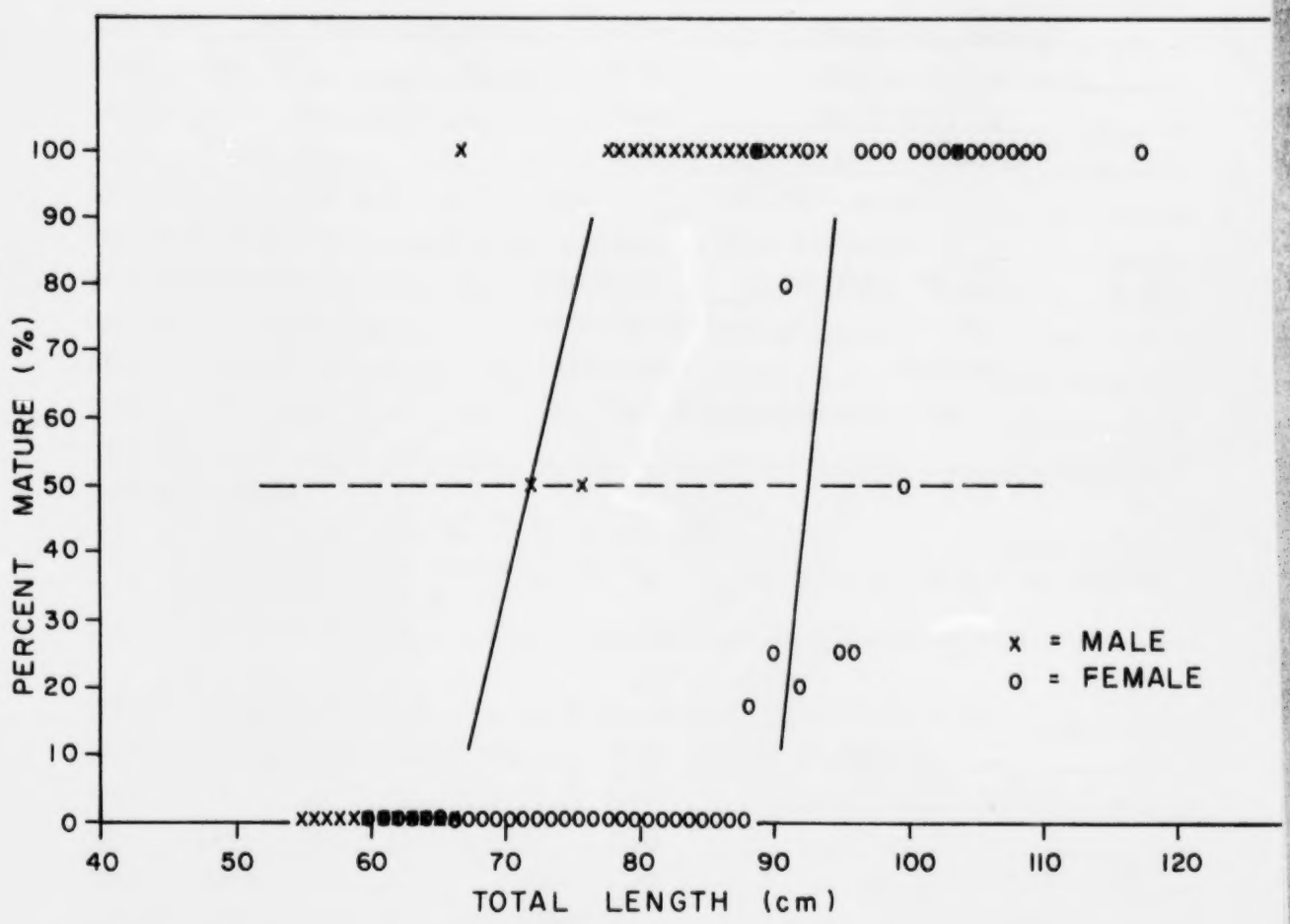

Fig. 30. Length at 50% maturity by sex for spiny dogfish.

Fig. 17. Length frequency of juvenile spiny dogfish (≤ 60 cm) by depth interval.

Appendix Table 1. Set information, G.B. REED, May 25-June 18, 1976.

VESSEL: G. B. REED DATE: Yr 76 Mo 05 Day 31 SET/HAUL NO: 1

LOCATION: off Five Fingers AREA: Strait of Georgia

START: Lat. 49 °14.2 'N Long. 123° 51.7 'W

END: Lat. 49 °14.4 'N Long. 123° 53.1 'W

GEAR: Engel 434 START TIME (PDT) :1421 DURATION: 17 min.

BOTTOM DEPTH m: Start: 172 End: _____ Est. Av. Depth: _____

NET DEPTH RANGE m: 3-30 m off bottom Est. Av. Depth: _____

DIRECTION OF SET °true: 281 SPEED kn: 3 DISTANCE TRAVELLED: 0.95 mi.

SET ON: Preselected WATER CONDITION: Lt. Chop TIDE: Flood

WIND DIRECTION: Southwest WIND SPEED: 5 RECORDER: K. Weir

TTM: - TDM: - BT: #1 OTHER OCEANOGRAPHIC DATA: -

REMARKS: _____

SOUNDER SUMMARY:

Dense schools of fish 128 m to bottom--net close to bottom on two occasions. Net opening 11-18 m. Missed midwater targets as did not get into deeper water.

VESSEL: G. B. REED DATE: Yr 76 Mo 05 Day 31 SET/HAUL NO: 2

LOCATION: off Five Fingers AREA: Strait of Georgia

START: Lat. 49 ° 14.6' N Long. 123 °52.5 'W

END: Lat. 49 ° 15.3' N Long. 123 °55.0 'W

GEAR: Engel 434 START TIME (PDT): 1620 DURATION: 30 min.

BOTTOM DEPTH m: Start: 225 End: 310 Est. Av. Depth: 268

NET DEPTH RANGE m: 75-110 Est. Av. Depth: 100

DIRECTION OF SET °true: _____ SPEED kn: ≈3 DISTANCE TRAVELLED: 1.8 mi.

SET ON: ≈100 m WATER CONDITION: calm TIDE: _____

WIND DIRECTION: SE WIND SPEED: _____ RECORDER: M. Smith

TTM: _____ TDM: _____ BT: #2 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Towed net 7-15 m above dense schools. Towed mostly ~120 m, homogenous mass 155 m to bottom. Little or no layering.

Appendix Table 1 (cont'd).

VESSEL: G. B. REED DATE: Yr 76 Mo 05 Day 31 SET/HAUL NO: 3

LOCATION: Entrance Island AREA: Strait of Georgia

START: Lat. 49 ° 15.7 ' N Long. 123 ° 48.4 'W

END: Lat. 49 ° 17.0 ' N Long. 123 ° 47.5 'W

GEAR: Engel 434 START TIME (PDT) : 1832 DURATION: 30 min.

BOTTOM DEPTH m: Start: 415 End: 415 Est. Av. Depth: 415

NET DEPTH RANGE m: 265-275 Est. Av. Depth: 270

DIRECTION OF SET °true: 010 SPEED kn: 3 DISTANCE TRAVELLED: mi.

SET ON: Target 275 m WATER CONDITION: calm TIDE: flood

WIND DIRECTION: Southeast WIND SPEED: < 5 RECORDER: K. Weir

TTM: TDM: BT: #3 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Set on bottom of light homogenous mass. Very light at net range. A medium-light mass above. Some spotting ~80 m above homogenous mass.

VESSEL: G. G. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: 4

LOCATION: Hornby Island AREA: Strait of Georgia

START: Lat. 49 ° 28.4 N Long. 124 ° 34.5 'W

END: Lat. 49 ° 26.7 ' N Long. 124 ° 33.4 'W

GEAR: Engel 434 START TIME (PDT): 0822 DURATION: 30 min.

BOTTOM DEPTH m: Start: 177 End: 153 Est. Av. Depth: 180

NET DEPTH RANGE m: 112-88 Est. Av. Depth: 110

DIRECTION OF SET °true: 170 SPEED kn: 3 DISTANCE TRAVELLED: 1.7 mi.

SET ON: 110 m WATER CONDITION: Lt. Chop TIDE: Ebb

WIND DIRECTION: West WIND SPEED: 15 RECORDER: M. Smith

TTM: TDM: BT: #4 OTHER OCEANOGRAPHIC DATA:

REMARKS: standard

SOUNDER SUMMARY: Fish in medium dense schools 110-128 m. Medium homogenous layer 165 m to bottom. Individual spotting @ 50 m at start, lifted net @5 min in tow as layer became dense.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: 5

LOCATION: Hornby-Denman Island AREA: Strait of Georgia

START: Lat. 49 ° 28.4 'N Long. 124 ° 34.5 'W

END: Lat. 49 ° 26.6 'N Long. 124 ° 34.6 'W

GEAR: Engel 434 START TIME (PDT) : 1015 DURATION: 30 min.

BOTTOM DEPTH m: Start: 165 End: 134 Est. Av. Depth: 165

NET DEPTH RANGE m: 64-42 Est. Av. Depth: 46

DIRECTION OF SET °true: 170 SPEED kn: - DISTANCE TRAVELLED: 1.8 mi.

SET ON: Target 55 m. WATER CONDITION: Ripple TIDE: Ebb

WIND DIRECTION: SW WIND SPEED: _____ RECORDER: M. Smith

TTM: _____ TDM: _____ BT: 5 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Net above 55 m towed harder; fish showing above headline; dense school 110-120 m, medium homogenous mass 165 to bottom; no layering. S Same tow as last.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: 6

LOCATION: off Qualicum Beach AREA: Strait of Georgia

START: Lat. 49 ° 24.1' N Long. 124 ° 28.7 ' W

END: Lat. 49 ° 23.5' N Long. 124 ° 26.2 ' W

GEAR: Engel 434 START TIME (PDT): 1258 DURATION: 35 min.

BOTTOM DEPTH m: Start: 179 End: 177 Est. Av. Depth: 179

NET DEPTH RANGE m: 91-113 Est. Av. Depth: 110

DIRECTION OF SET °true: 120 SPEED kn: _____ DISTANCE TRAVELLED: 2.4 mi.

SET ON: Target 110 m WATER CONDITION: Lt. Chop TIDE: Slack

WIND DIRECTION: SE WIND SPEED: < 10 RECORDER: M. Smith

TTM: _____ TDM: _____ BT: #6 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Missed target at start. Light homogenous mass 150 m to bottom; 1/2 way through tow dropped net deeper. Target not very dense.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: 7

LOCATION: off Qualicum Beach AREA: Strait of Georgia

START: Lat. 49° 26.0' N Long. 124° 27.9' W

END: Lat. 49° 25.0' N Long. 124° 25.0' W

GEAR: Engel 434 START TIME (PDT): 1421 DURATION: 45 min

BOTTOM DEPTH m: Start: 325 End: 336 Est. Av. Depth: 330

NET DEPTH RANGE m: 256-265 Est. Av. Depth: 258

DIRECTION OF SET °true: 110 SPEED kn: ≈ 3 DISTANCE TRAVELLED: 2.1 mi.

SET ON: Target 140 m WATER CONDITION: lt. chop TIDE:

WIND DIRECTION: SE WIND SPEED: 10 RECORDER: M. Smith

TTM: TDM: BT: #7 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Net towed under or just in very light to light homogenous mass which extended from 200-260 m; light individual scatter ~110-128 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: 8

LOCATION: Off French Creek AREA: Strait of Georgia

START: Lat. 49° 23.8'N Long. 124° 22.4 ' W

END: Lat. 49° 23.0'N Long. 124° 20.3 ' W

GEAR: Engel 434 START TIME (PDT): 1717 DURATION: 30 min.

BOTTOM DEPTH m: Start: 260 End: 205 Est. Av. Depth: 220

NET DEPTH RANGE m: 100-106 Est. Av. Depth: 102

DIRECTION OF SET °true: 125 SPEED kn: 3 DISTANCE TRAVELLED: 1.8 mi.

SET ON: Target 90 m WATER CONDITION: TIDE: Flood

WIND DIRECTION: SE WIND SPEED: RECORDER: M. Smith

TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Dense schools 90-128 m.; light homogenous mass 146 m to bottom. Some dense spots above. Towed on top of schools, dropped net through last school.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 02 SET/HAUL NO: 9
LOCATION: Mitlenatch Island AREA: Strait of Georgia
START: Lat. 49 • 55.5 ' N Long. 125 • 03.5 ' W
END: Lat. 49 • 57.4 ' N Long. 125 • 05.2 ' W
GEAR: Engel 434 START TIME (PDT): 0817 DURATION: 40 min.
BOTTOM DEPTH m: Start: 287 End: 256 Est. Av. Depth: 282
NET DEPTH RANGE m: 146-180 Est. Av. Depth: 165
DIRECTION OF SET °true: 320 SPEED kn: ≈ 3 DISTANCE TRAVELLED: 2.2 mi.
SET ON: Target 150-160 m WATER CONDITION: rippled TIDE: Slack
WIND DIRECTION: SE WIND SPEED: ≈ 5 RECORDER: M. Smith
TTM: _____ TDM: _____ BT: #8 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: Standard

SOUNDER SUMMARY: Fairly dense homogenous layer 155 to bottom. Some indication of light layering at 200 m. Individual targets 100-128 m. Net in medium density on top of homogenous layer.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 02 SET/HAUL NO: 10
LOCATION: Mitlenatch Island AREA: Strait of Georgia
START: Lat. 49° 57.4'N Long. 125 • 05.2 ' W
END: Lat. 49° 55.3'N Long. 125 • 03.1 ' W
GEAR: Engel 434 START TIME (PDT): 0955 DURATION: 55 min.
BOTTOM DEPTH m: Start: 255 End: 282 Est. Av. Depth: 280
NET DEPTH RANGE m: 180 Est. Av. Depth: 220
DIRECTION OF SET °true: 150 SPEED kn: 3 DISTANCE TRAVELLED: 2.8 mi.
SET ON: Target 120 m WATER CONDITION: Lt. ripple TIDE: Ebb
WIND DIRECTION: SE WIND SPEED: _____ RECORDER: M. Smith
TTM: x TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____
REMARKS: Standard

SOUNDER SUMMARY: Set back on previous tow. Homogenous mass 165 m to bottom. Light individual spotting 110-125 m. Very light surface layer 5-9 m. Distinct layering in homogenous mass.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 02 SET/HAUL NO: 11

LOCATION: Mitlenatch Island AREA: Strait of Georgia

START: Lat. 49 ° 57.4 ' N Long. 125 ° 04.5 ' W

END: Lat. 49 ° 54.4 ' N Long. 125 ° 02.1 ' W

GEAR: Engel 434 START TIME (PDT) : 1329 DURATION: 62 min.

BOTTOM DEPTH m: Start: 256 End: 270 Est. Av. Depth: 263

NET DEPTH RANGE m: 250-258 Est. Av. Depth: 256

DIRECTION OF SET °true: 150 SPEED kn: 3 DISTANCE TRAVELLED: 3.4 mi.

SET ON: Target 256 m WATER CONDITION: light ripple TIDE: low slack

WIND DIRECTION: SE WIND SPEED: <5 RECORDER: Mike Smith

TTM: x TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Transducer looking down, medium dense homogenous layer 145 m to bottom. Net in light layer 238 m to bottom. Towed ≈9 m off bottom. Net stayed 256-258 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 02 SET/HAUL NO: 12

LOCATION: Mitlenatch Island AREA: Strait of Georgia

START: Lat. 49 ° 57.6 ' N Long. 125 ° 04.7 ' W

END: Lat. 49 ° 55.2 ' N Long. 125 ° 03.0 ' W

GEAR: Engel 434 START TIME (PDT): 1540 DURATION: 45 min.

BOTTOM DEPTH m: Start: 256 End: _____ Est. Av. Depth: _____

NET DEPTH RANGE m: 100-113 Est. Av. Depth: 110

DIRECTION OF SET °true: 150 SPEED kn: 3 DISTANCE TRAVELLED: 2.4 mi.

SET ON: Target 110 m WATER CONDITION: calm TIDE: start of flood

WIND DIRECTION: S WIND SPEED: 0 RECORDER: Mike Smith

TTM: x TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Medium homogenous layer 150 m to bottom. Medium dense schools 110-128 m, more dense than previous three. Schools appear rising over net as tow proceeded.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 03 SET/HAUL NO: 13

LOCATION: mid-strait N. Texada-Van Is AREA: Strait of Georgia

START: Lat. 49° 46.3'N Long. 124 ° 47.1' W

END: Lat. 49° 49.2' N Long. 124 ° 50.7' W

GEAR: Engel 434 START TIME (PDT) : _____ DURATION: 60 min.

BOTTOM DEPTH m: Start: 340 End: 340 Est. Av. Depth: 342

NET DEPTH RANGE m: 163-166 Est. Av. Depth: 165

DIRECTION OF SET °true: 320 SPEED kn: _____ DISTANCE TRAVELLED: _____ mi.

SET ON: target 165 m WATER CONDITION: choppy TIDE: high slack

WIND DIRECTION: NW WIND SPEED: 15 RECORDER: MSS

TTM: x TDM: _____ BT: #9 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: very light spotting 75-112 m. Medium homogenous mass 155-329 m some indication of layering.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 03 SET/HAUL NO: 14

LOCATION: Midstrait--S. of Montgomery Bank AREA: Strait of Georgia

START: Lat. 49 ° 49.8' N Long. 124 ° 54.2' W

END: Lat. 49 ° 51.7' N Long. 124 ° 56.2' W

GEAR: Engel 434 START TIME (PDT): 1043 DURATION: 45 min.

BOTTOM DEPTH m: Start: 191 End: 282 Est. Av. Depth: 260

NET DEPTH RANGE m: 128-210 Est. Av. Depth: 200

DIRECTION OF SET °true: 310 SPEED kn: 3 DISTANCE TRAVELLED: 2.3 mi.

SET ON: target 110 WATER CONDITION: ripple TIDE: ebb

WIND DIRECTION: NW WIND SPEED: <5 RECORDER: MSS

TTM: x TDM: _____ BT: #10 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Medium to heavy scatter 165 m to bottom. Very light spotting 110-128 m. Dropped net last 10 min.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 03 SET/HAUL NO: 15

LOCATION: N. of Montgomery Bank AREA: Strait of Georgia

START: Lat. 49 ° 54.6'N Long. 124 ° 54.0 ' W

END: Lat. 49 ° 52.0'N Long. 124 ° 56.5 'W

GEAR: Engel 434 START TIME (PDT) : 1302 DURATION: 160 min.

BOTTOM DEPTH m: Start: 237 End: 291 Est. Av. Depth: 265

NET DEPTH RANGE m: 128-185 Est. Av. Depth: 176

DIRECTION OF SET °true: 143 SPEED kn: 3 DISTANCE TRAVELLED: 3.2 mi.

SET ON: Target 174-184 WATER CONDITION: calm TIDE:

WIND DIRECTION: WIND SPEED: RECORDER: MSS

TTM: x TDM: BT: #11 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY:

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 03 SET/HAUL NO: 16

LOCATION: NW Mitlenatch Island AREA: Strait of Georgia

START: Lat. 49 ° 58.4'N Long. 125 ° 04.3 ' W

END: Lat. 49 ° 55.4'N Long. 125 ° 02.7 ' W

GEAR: Engel 434 START TIME (PDT): 1553 DURATION: 60 min.

BOTTOM DEPTH m: Start: 274 End: 287 Est. Av. Depth: 280

NET DEPTH RANGE m: Est. Av. Depth:

DIRECTION OF SET °true: 160 SPEED kn: ≈3 DISTANCE TRAVELLED: 3.2 mi.

SET ON: Target 200 m WATER CONDITION: ripple TIDE:

WIND DIRECTION: SE WIND SPEED: 0 RECORDER: MSS

TTM: x TDM: BT: #12 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Medium homogenous mass 165 to bottom. Very light spotting 50-70 m. Fairly strong layer on surface-18 m; scatter rising to 146 m latter part of tow.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 04 SET/HAUL NO: 17

LOCATION: Halibut Bank-Entrance Is. AREA: Strait of Georgia

START: Lat. 49 ° 16.4 'N Long. 123 °44.3 'W

END: Lat. 49 ° 15.4 'N Long. 123 °41.5 'W

GEAR: Engel 434 START TIME (PDT) : 0824 DURATION: 45 min.

BOTTOM DEPTH m: Start: 400 End: _____ Est. Av. Depth: _____

NET DEPTH RANGE m: 250-257 Est. Av. Depth: 256

DIRECTION OF SET °true: 110 SPEED kn: ≈3 DISTANCE TRAVELLED: 2.0 mi.

SET ON: Target 256 WATER CONDITION: light chop TIDE: Flood

WIND DIRECTION: SE WIND SPEED: <15 RECORDER: MSS

TTM: _____ TDM: _____ BT: #13 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Medium to light homogenous mass 140-296 m. Spotting 91-110 m, almost nothing from 296 m to bottom (400 m).Some layering 146-165 m, 220-256 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 04 SET/HAUL NO: 18

LOCATION: Halibut Bank-Entrance Is. AREA: Strait of Georgia

START: Lat. 49 ° 17.45' N Long. 123 ° 43.7 'W

END: Lat. 49 ° 16.8 ' N Long. 123 ° 40.1 'W

GEAR: Engel 434 c/w 3/4" liner START TIME (PDT): 1045 DURATION: 45 min.

BOTTOM DEPTH m: Start: 238 End: 255 Est. Av. Depth: 250

NET DEPTH RANGE m: 165-157 Est. Av. Depth: 159

DIRECTION OF SET °true: 112 SPEED kn: ≈3 DISTANCE TRAVELLED: 2.5 mi.

SET ON: Target 155-165 WATER CONDITION: lt. chop TIDE: _____

WIND DIRECTION: SE WIND SPEED: 15 RECORDER: MSS

TTM: x TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Homogenous layer 140 m to bottom. Some layering 160-200 m, 10 m layer on bottom. Some spotting at about 90 m.

Appendix Table 1 (cont'd)

VESSEL: G.B.REED DATE: Yr 76 Mo 06 Day 04 SET/HAUL NO: 19

LOCATION: Halibut Bank-Entrance Is. AREA: Strait of Georgia

START: Lat. 49 ° 18.3' N Long. 123 ° 43.0 ' W

END: Lat. 49 ° 17.6' N Long. 123 ° 39.7 ' W

GEAR: Engel 434 START TIME (PDT) : 1240 DURATION: 45 min.

BOTTOM DEPTH m: Start: 289 End: 224 Est. Av. Depth: 275

NET DEPTH RANGE m: 90-77 Est. Av. Depth: 85

DIRECTION OF SET °true: 112 SPEED kn: ≈ 3 DISTANCE TRAVELLED: 2.3 mi.

SET ON: Target 90 m WATER CONDITION: lt. ripple & swell TIDE:

WIND DIRECTION: SE WIND SPEED: 10 RECORDER: MSS

TTM: x TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS: Standard

SOUNDER SUMMARY: Medium homogenous layer 128 m to bottom, some layering 146 m. Target--spotting ≈90 m. Spotting quite scarce 130 m. Scatter dropping to 146 m.

VESSEL: G.B. REED DATE: Yr 76 Mo 06 Day 07 SET/HAUL NO: 20

LOCATION: Winchelsea Island AREA: Strait of Georgia

START: Lat. 49 ° 16.5 'N Long. 124 °00.3 'W

END: Lat. 49 ° 15.9 'N Long. 123 °58.2 'W

GEAR: Engel 434 START TIME (PDT): 1210 DURATION: 30 min.

BOTTOM DEPTH m: Start: 275 End: 285 Est. Av. Depth: 275

NET DEPTH RANGE m: 88-123 Est. Av. Depth: 110

DIRECTION OF SET °true: 108 SPEED kn: DISTANCE TRAVELLED: 1.4 mi.

SET ON: Target 110 m WATER CONDITION: rippled TIDE: Ebb

WIND DIRECTION: NW WIND SPEED: 10 RECORDER: MSS

TTM: TDM: BT: #14 OTHER OCEANOGRAPHIC DATA:

REMARKS: Standard

SOUNDER SUMMARY: Dense schools 90-128 m. Large number of fish seen going in net at first of tow; few fish towards the end of tow. Homogenous mass 128 m to bottom.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 07 SET/HAUL NO: 21
LOCATION: Entrance Island AREA: Strait of Georgia
START: Lat. 49 • 13.4' N Long. 123 • 39.7 ' W
END: Lat. 49 • 14.0' N Long. 123 • 41.9 ' W
GEAR: Engel 434 START TIME (PDT) : 1436 DURATION: 30 min.
BOTTOM DEPTH m: Start: 384 End: 275 Est. Av. Depth: 380
NET DEPTH RANGE m: 159-131 Est. Av. Depth: 135
DIRECTION OF SET °true: 292 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.6 mi.
SET ON: Target 137 m WATER CONDITION: choppy TIDE: slack
WIND DIRECTION: NW WIND SPEED: 15 RECORDER: MSS
TTM: _____ TDM: _____ BT: #15 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: forward wing twisted

SOUNDER SUMMARY: Homogenous layer 128-293 m. Nothing 293 m to bottom. Some spotting at 90 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 07 SET/HAUL NO: 22
LOCATION: Entrance Island (mid strait) AREA: Strait of Georgia
START: Lat. 49 ° 14.4 'N Long. 123 °38.1 'W
END: Lat. 49 ° 14.8 'N Long. 123 °39.0 'W
GEAR: Engel 434 START TIME (PDT): 1731 DURATION: 30 min.
BOTTOM DEPTH m: Start: 373 End: 380 Est. Av. Depth: 375
NET DEPTH RANGE m: 115-128 Est. Av. Depth: 117
DIRECTION OF SET °true: 292 SPEED kn: 3 DISTANCE TRAVELLED: 1.2 mi.
SET ON: Target 119 m WATER CONDITION: rippled TIDE: flood
WIND DIRECTION: NW WIND SPEED: 10 RECORDER: MSS
TTM: _____ TDM: _____ BT: #16 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: tension winch not holding

SOUNDER SUMMARY: Homogenous layer 128 m to 274 m. Net on top of dense layer. Some spotting ≈90 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 08 SET/HAUL NO: 23

LOCATION: Pryce Channel AREA: Toba Inlet

START: Lat. 50 ° 18.0 ' N Long. 124 °50.0 ' W

END: Lat. 50 ° 18.4 ' N Long. 124 °47.5 ' W

GEAR: Engel 434 START TIME (PDT) :1233 DURATION: 30 min.

BOTTOM DEPTH m: Start: 499 End: 504 Est. Av. Depth: 500

NET DEPTH RANGE m: 187-177 Est. Av. Depth: 184

DIRECTION OF SET °true: 075 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.6 mi.

SET ON: Target 183 m WATER CONDITION: calm TIDE: flood

WIND DIRECTION: NW WIND SPEED: < 5 RECORDER: MSS

TTM: _____ TDM: _____ BT: #17 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Homogenous mass 165-237 m; fish in most dense layer at 180 m. Some individual spotting 90-128 m. Light spotting from surface to 37 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 08 SET/HAUL NO: 24

LOCATION: Pryce Channel AREA: Toba Inlet

START: Lat. 50 ° 18.1'N Long. 124 ° 50.3 ' W

END: Lat. 50 ° 18.3'N Long. 124 ° 47.9 ' W

GEAR: Engel 434 START TIME (PDT): 1428 DURATION: 27 min.

BOTTOM DEPTH m: Start: 457 End: 505 Est. Av. Depth: 477

NET DEPTH RANGE m: 110-91 Est. Av. Depth: 93

DIRECTION OF SET °true: 075 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.6 mi.

SET ON: Target 91-101 WATER CONDITION: calm TIDE: _____

WIND DIRECTION: NS WIND SPEED: 5 RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Same as previous tow. Fishing in individual scatter.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: 25
LOCATION: Grief Pt. (N. Malaspina) AREA: Malaspina Strait
START: Lat. 49 • 46.2 ' N Long. 124 • 29.0 ' W
END: Lat. 49 • 45.2 ' N Long. 124 • 25.0 ' W
GEAR: Engel 434 START TIME (PDT): 0821 DURATION: 45 min.
BOTTOM DEPTH m: Start: 312 End: 314 Est. Av. Depth: 313
NET DEPTH RANGE m: 110-91-110 Est. Av. Depth: 99
DIRECTION OF SET °true: 110 SPEED kn: ≈3 DISTANCE TRAVELLED: 2.8 mi.
SET ON: Target 101 m WATER CONDITION: choppy TIDE: ebb
WIND DIRECTION: SE WIND SPEED: 25 RECORDER: MSS
TTM: _____ TDM: _____ BT: #18 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: Standard
SOUNDER SUMMARY: Very light spotting 91-146 m. Light to medium homogenous layer 165 m to bottom some layering at start 165-238 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: 26
LOCATION: Grief Pt-Mrytle Pt. AREA: Malaspina Strait
START: Lat. 49 • 46.2 'N Long. 124 • 29.3 ' W
END: Lat. 49 • 45.5 'N Long. 124 • 27.2 ' W
GEAR: Engel 434 c/w liner START TIME (PDT): 1015 DURATION: 30 min.
BOTTOM DEPTH m: Start: 313 End: 316 Est. Av. Depth: 315
NET DEPTH RANGE m: 137-176 Est. Av. Depth: 170
DIRECTION OF SET °true: 110 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.6 mi.
SET ON: Target 165-172 m WATER CONDITION: choppy TIDE: Ebb
WIND DIRECTION: SE WIND SPEED: 20 RECORDER: MSS
TTM: _____ TDM: _____ BT: #19 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: Standard
SOUNDER SUMMARY: Heavy spotting 90-128 m. Homogenous layer 146-293 m. Net in most dense layer.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: 27

LOCATION: North Malaspina Strait AREA: Malaspina Strait

START: Lat. 49 • 46.2 ' N Long. 124 • 29.1 ' W

END: Lat. 49 • 45.5 ' N Long. 124 • 27.2 ' W

GEAR: Engel 434 START TIME (PDT): 1220 DURATION: 30 min.

BOTTOM DEPTH m: Start: 313 End: 318 Est. Av. Depth: 316

NET DEPTH RANGE m: 150-278 Est. Av. Depth: 274

DIRECTION OF SET °true: 115 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.45 mi.

SET ON: Target 256-274 m WATER CONDITION: lite chop TIDE: slack

WIND DIRECTION: SE WIND SPEED: 15 RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Same as previous tow--fairly dense layers of individual fish 90-128 m. Homogenous layer 150 m to bottom.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: 28

LOCATION: Cape Cockburn AREA: Malaspina Strait

START: Lat. 49 • 40.4 ' N Long. 124 • 16.9 ' W

END: Lat. 49 • 39.1 ' N Long. 124 • 16.1 ' W

GEAR: Engel 434 c/w liner START TIME (PDT): 1437 DURATION: 30 min.

BOTTOM DEPTH m: Start: 368 End: 344 Est. Av. Depth: 356

NET DEPTH RANGE m: 220-284 Est. Av. Depth: 271

DIRECTION OF SET °true: 143 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target 274 m WATER CONDITION: lite chop TIDE: flood

WIND DIRECTION: SE WIND SPEED: ≈ 15 RECORDER: MSS

TTM: _____ TDM: _____ BT: #20 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Medium layer 128 m to bottom; little to no layering; few light spots above 128 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: 29

LOCATION: Mouth of Jervis (mid-strait) AREA: Malaspina Strait

START: Lat. ° ' Long. ° '

END: Lat. 49 ° 41.2 ' N Long. 124 ° 17.4 ' W

GEAR: Engel 434 START TIME (PDT): 1730 DURATION: 3 min.

BOTTOM DEPTH m: Start: 180 End: _____ Est. Av. Depth: _____

NET DEPTH RANGE m: Elac didn't function Est. Av. Depth: _____

DIRECTION OF SET °true: _____ SPEED kn: _____ DISTANCE TRAVELLED: _____ mi.

SET ON: Target 145-165 m WATER CONDITION: lite chop TIDE: flood (slack)

WIND DIRECTION: SE c/w rain WIND SPEED: ≈ 15 RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Net fouled

SOUNDER SUMMARY: Same as previous tow; aborted set--strong tide, hit bottom, transducer didn't work.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: 30

LOCATION: Mouth of Jervis Inlet AREA: Malaspina Strait

START: Lat. 49 ° 40.5 ' N Long. 124 ° 16.5 ' W

END: Lat. 49 ° 38.9 ' N Long. 124 ° 15.0 ' W

GEAR: Engel 434 c/w liner START TIME (PDT): 1830 DURATION: 30 min.

BOTTOM DEPTH m: Start: 369 End: 342 Est. Av. Depth: 355

NET DEPTH RANGE m: 150-124 Est. Av. Depth: 132

DIRECTION OF SET °true: 150 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.9 mi.

SET ON: Target 128 m WATER CONDITION: ripple TIDE: ebb

WIND DIRECTION: SE WIND SPEED: 10 RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Homogenous layer 128-365 m. Distinct layer 128 m has separated from main body of homogenous mass. Some faint spotting 70-90 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 10 SET/HAUL NO: 31

LOCATION: W. of Lasqueti Island AREA: Strait of Georgia

START: Lat. 49 • 26.1 'N Long. 124 •23.8 ' W

END: Lat. 49 • 27.0 'N Long. 124 •25.5 ' W

GEAR: Engel 434 START TIME (PDT) : 0822 DURATION: 30 min.

BOTTOM DEPTH m: Start: 344 End: 324 Est. Av. Depth: 334

NET DEPTH RANGE m: 110-157-165 Est. Av. Depth: 160

DIRECTION OF SET °true: 300 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target 165 m WATER CONDITION: ripple TIDE: ebb

WIND DIRECTION: SE WIND SPEED: 5 RECORDER: MSS

TIM: _____ TDM: _____ BT: #21 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY:

Light homogenous layer 146-256 m. Net in most dense layer 165 m. Medium spotting 90-128 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 10 SET/HAUL NO: 32

LOCATION: W. of Lasqueti (Sister I) AREA: Strait of Georgia

START: Lat. 49 ° 27.2 ' N Long. 124 ° 25.8 ' W

END: Lat. 49 ° 26.0 ' N Long. 124 ° 23.5 'W

GEAR: Engel 434 c/w liner START TIME (PDT): 0949 DURATION: 35 min.

BOTTOM DEPTH m: Start: 327 End: 342 Est. Av. Depth: 334

NET DEPTH RANGE m: 88-110 Est. Av. Depth: 101

DIRECTION OF SET °true: 120 SPEED kn: 3.0 DISTANCE TRAVELLED: 1.9 mi.

SET ON: Target 101-110 m WATER CONDITION: ripple TIDE: ebb (slack)

WIND DIRECTION: SE WIND SPEED: 15 RECORDER: MSS

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: Standard

SOUNDER SUMMARY: Light homogenous mass 146-256 m. Most dense 155-165 m. Medium to heavy spotting 90-128 m gets deeper as tow goes on.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 10 SET/HAUL NO: 33
LOCATION: Off Parksville AREA: Strait of Georgia
START: Lat. 49 • 21.4 ' N Long. 124 • 16.4 ' W
END: Lat. 49 • 23.1 ' N Long. 124 • 19.4 ' W
GEAR: Engel 434 c/w liner START TIME (PDT) : 1215 DURATION: 49 min.
BOTTOM DEPTH m: Start: 220 End: 269 Est. Av. Depth: 245
NET DEPTH RANGE m: 90-132 Est. Av. Depth: 117
DIRECTION OF SET °true: 310 SPEED kn: 3.0 DISTANCE TRAVELLED: 2.7 mi.
SET ON: Target 118 m WATER CONDITION: choppy TIDE: Flood
WIND DIRECTION: SE WIND SPEED: 15 RECORDER: MSS
TIM: _____ TDM: _____ BT: #22 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: Ripped net
SOUNDER SUMMARY: Fairly heavy schooling 110-146 (target 118 m). Medium homogenous layer 165 m to bottom.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 14 SET/HAUL NO: 34
LOCATION: off Thrasher Rock AREA: Strait of Georgia
START: Lat. 49° 10.8 ' N Long. 124° 32.8 ' W
END: Lat. 49° 11.9 ' N Long. 124° 33.3 ' W
GEAR: Engel 434 START TIME (PDT): 1103 DURATION: 30 min.
BOTTOM DEPTH m: Start: 351 End: 362 Est. Av. Depth: 356
NET DEPTH RANGE m: 70-168 Est. Av. Depth: 165
DIRECTION OF SET °true: 335 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.2 mi.
SET ON: Target 165 m WATER CONDITION: lite chop TIDE: _____
WIND DIRECTION: SE WIND SPEED: ≈ 10 RECORDER: MSS
TIM: x TDM: _____ BT: #23 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: _____
SOUNDER SUMMARY: Light layer 128-292 m. Distinct layering 146 m, 220 and 256 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 14 SET/HAUL NO: 35

LOCATION: Thrasher Rock AREA: Strait of Georgia

START: Lat. 49 ° 11.8 'N Long. 123 ° 36.1 ' W

END: Lat. 49 ° 09.5 'N Long. 123 ° 33.8 ' W

GEAR: Engel 434 c/w Liner START TIME (PDT) : 1308 DURATION: 45 min.

BOTTOM DEPTH m: Start: 382 End: 395 Est. Av. Depth: 389

NET DEPTH RANGE m: 91-128 Est. Av. Depth: 106

DIRECTION OF SET °true: 135 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 2.8 mi.

SET ON: 110 WATER CONDITION: lite chop TIDE: Slack

WIND DIRECTION: SE WIND SPEED: ≈ 5 RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Medium to light layer 128-256 m. Some layering at 128-165 m and dense spotting. Towed net through main body of spots.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 14 SET/HAUL NO: 36

LOCATION: Mid Strait (N. Arm Jetty-Pt. Grey) AREA: Strait of Georgia

START: Lat. 49 ° 13.45 ' N Long. 123 ° 28.4 ' W

END: Lat. 49 ° 11.15 ' N Long. 123 ° 25.55 ' W

GEAR: Engel 434 START TIME (PDT): 1610 DURATION: 60 min.

BOTTOM DEPTH m: Start: 308 End: 318 Est. Av. Depth: 315

NET DEPTH RANGE m: 183-263 Est. Av. Depth: 260

DIRECTION OF SET °true: 138 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 3.0 mi.

SET ON: 256 m WATER CONDITION: ripple TIDE: flood

WIND DIRECTION: SE WIND SPEED: 5 RECORDER: MSS

TTM: _____ TDM: _____ BT: #24 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY:

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 14 SET/HAUL NO: 37
LOCATION: mid strait (Thrasher Rk-Pt. Grey) AREA: Strait of Georgia
START: Lat. 49 • 11.7 ' N Long. 123 • 26.5 ' W
END: Lat. 49 • 13.3 ' N Long. 123 • 28.1 ' W
GEAR: Engel 434 START TIME (PDT) : 1804 DURATION: 30 min.
BOTTOM DEPTH m: Start: 307 End: 302 Est. Av. Depth: 305
NET DEPTH RANGE m: 185-165 Est. Av. Depth: 168
DIRECTION OF SET °true: 318 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.95 mi.
SET ON: Target 165 m WATER CONDITION: calm TIDE: flood
WIND DIRECTION: S WIND SPEED: < 0 RECORDER: MSS
TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____
REMARKS: _____
SOUNDER SUMMARY: Net fishing in very light layer.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 15 SET/HAUL NO: 38
LOCATION: Off Denman Island AREA: Strait of Georgia
START: Lat. 49 • 38.8 'N Long. 124 • 44.9 ' W
END: Lat. 49 • 37.5 'N Long. 124 • 43.4 ' W
GEAR: Engel 434 START TIME (PDT): 0823 DURATION: 30 min.
BOTTOM DEPTH m: Start: 137 End: 128 Est. Av. Depth: 133
NET DEPTH RANGE m: 100-73 Est. Av. Depth: 95
DIRECTION OF SET °true: 138 SPEED kn: ≈ 3.0 DISTANCE TRAVELLED: 1.7 mi.
SET ON: Target 95 m WATER CONDITION: rough TIDE: flood
WIND DIRECTION: SE WIND SPEED: 25 RECORDER: MSS
TTM: _____ TDM: _____ BT: #25 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: _____
SOUNDER SUMMARY: Heavy spotting around 70-100 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 15 SET/HAUL NO: 39

LOCATION: Texada Is. (off Gillies Bay) AREA: Strait of Georgia

START: Lat. 49 • 40.0 'N Long. 124 • 32.8 'W

END: Lat. 49 • 38.6 'N Long. 124 • 31.6 'W

GEAR: Engel 434 START TIME (PDT): 1221 DURATION: 29 min.

BOTTOM DEPTH m: Start: 263 End: 309 Est. Av. Depth: 286

NET DEPTH RANGE m: 180-238 Est. Av. Depth: _____

DIRECTION OF SET °true: 150 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.6 mi.

SET ON: Target 256 WATER CONDITION: choppy TIDE: Ebb

WIND DIRECTION: SE WIND SPEED: 30 RECORDER: MSS

TTM: _____ TDM: _____ BT: #26 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Light layer 256 m to bottom.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 15 SET/HAUL NO: 40

LOCATION: S. of Texada-Lasqueti Is. AREA: Strait of Georgia

START: Lat. 49 • 24.6 'N Long. 124 • 02.2 'W

END: Lat. 49 • 26.1 'N Long. 124 • 03.5 'W

GEAR: Engel 434 START TIME (PDT): 1712 DURATION: 30 min.

BOTTOM DEPTH m: Start: 402 End: 399 Est. Av. Depth: 400

NET DEPTH RANGE m: 200-252 Est. Av. Depth: 248

DIRECTION OF SET °true: 355 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.6 mi.

SET ON: Target 238 m WATER CONDITION: Heavy Swell TIDE: Flood (start)

WIND DIRECTION: SE WIND SPEED: 20 RECORDER: MSS

TTM: _____ TDM: _____ BT: #27 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Medium layer 73-293 m; most dense at 238 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: 41

LOCATION: off Sandhead AREA: Strait of Georgia

START: Lat. 49 • 03.0 'N Long. 123 • 25.8 'W

END: Lat. 49 • 04.5 'N Long. 123 • 26.9 'W

GEAR: Engel 434 START TIME (PDT) : 0818 DURATION: 30 min.

BOTTOM DEPTH m: Start: 311 End: 309 Est. Av. Depth: 311

NET DEPTH RANGE m: 150-128 Est. Av. Depth: 135

DIRECTION OF SET °true: 330 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.7 mi.

SET ON: Target 128 m WATER CONDITION: lite ripple TIDE: slack

WIND DIRECTION: West WIND SPEED: 10 RECORDER: MSS

TIM: _____ TIM: _____ BT: #28 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Nothing above 128 m. Very light layer 128 m to bottom. Large spotting 128-250 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: 42

LOCATION: off Sandheads (mid Strait) AREA: Strait of Georgia

START: Lat. 49 ° 03.6 ' N Long. 123 • 25.8 ' W

END: Lat. 49 ° 01.8 ' N Long. 123 • 23.1 ' W

GEAR: Engel 434 START TIME (PDT): 0848 DURATION: 30 min.

BOTTOM DEPTH m: Start: 302 End: 260 Est. Av. Depth: 280

NET DEPTH RANGE m: 195-204 Est. Av. Depth: 200

DIRECTION OF SET °true: 135 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 2.5 mi.

SET ON: Target 200 m WATER CONDITION: lite ripple TIDE: Ebb

WIND DIRECTION: NW WIND SPEED: 10 RECORDER: MSS

TIM: _____ TIM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Very light layer 128-293 m. Spotting 128-256 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: 43

LOCATION: off Porlier Pass AREA: Strait of Georgia

START: Lat. 49° 03.1' N Long. 123° 30.8 ' W

END: Lat. 49° 04.4' N Long. 123° 31.1 ' W

GEAR: Engel 434 START TIME (PDT) : 1218 DURATION: 30 min.

BOTTOM DEPTH m: Start: 296 End: 285 Est. Av. Depth: 290

NET DEPTH RANGE m: 220-256 Est. Av. Depth: 250

DIRECTION OF SET °true: 345 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target 250 m. WATER CONDITION: ripple TIDE: ebb

WIND DIRECTION: NW WIND SPEED: 15 RECORDER: MSS

TTM: _____ TDM: _____ BT: #29 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Medium-light layer 90-290 m, light layer 246-259 m. Net fishing in 250 m in light layer.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: 44

LOCATION: off Porlier Pass AREA: Strait of Georgia

START: Lat. 49 ° 02.8 ' N Long. 123 ° 30.7 'W

END: Lat. 49 ° 04.2 ' N Long. 123 ° 31.3 'W

GEAR: Engel 434 START TIME (PDT): 1348 DURATION: 30 min.

BOTTOM DEPTH m: Start: 296 End: 280 Est. Av. Depth: 288

NET DEPTH RANGE m: 143-148 Est. Av. Depth: 148

DIRECTION OF SET °true: 345 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target 146 m WATER CONDITION: ripple TIDE: Ebb

WIND DIRECTION: NW WIND SPEED: 5-10 RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Little spotting to 55 m, medium-light layer 90-130 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: 45
LOCATION: off Porlier Pass AREA: Strait of Georgia
START: Lat. 49° 02.8' N Long. 123 ° 33.5 ' W
END: Lat. 49° 04.2' N Long. 123 °35.0 ' W
GEAR: Engel 434 START TIME (PDT) : 1509 DURATION: 30 min.
BOTTOM DEPTH m: Start: 192 End: 201 Est. Av. Depth: 196
NET DEPTH RANGE m: 55-64 Est. Av. Depth: 55
DIRECTION OF SET °true: _____ SPEED kn: ≃ 3.0 DISTANCE TRAVELLED: _____ mi.
SET ON: target 55 m WATER CONDITION: calm TIDE: slack
WIND DIRECTION: NW WIND SPEED: 5 RECORDER: MSS
TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____
REMARKS: _____
SOUNDER SUMMARY: Medium layer 128 m to bottom.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 17 SET/HAUL NO: 46
LOCATION: off Active Pass AREA: Strait of Georgia
START: Lat. 48 ° 53.5 'N Long. 123 °10.5 'W
END: Lat. 48 ° 52.6 'N Long. 123 °09.1 'W
GEAR: Engel 434 START TIME (PDT): 0825 DURATION: 30 min.
BOTTOM DEPTH m: Start: 132 End: _____ Est. Av. Depth: _____
NET DEPTH RANGE m: 104 Est. Av. Depth: 104
DIRECTION OF SET °true: 135 SPEED kn: ≃3.0 DISTANCE TRAVELLED: 1.3 mi.
SET ON: Target 90-110 m WATER CONDITION: _____ TIDE: _____
WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS
TTM: _____ TDM: _____ BT: #30 OTHER OCEANOGRAPHIC DATA: _____
REMARKS: _____
SOUNDER SUMMARY: Individual target at 90-110 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 17 SET/HAUL NO: 47

LOCATION: off Sandhead AREA: Strait of Georgia

START: Lat. 49° 03.25' N Long. 123 ° 25.7 ' W

END: Lat. 49° 04.4 ' N Long. 123 ° 28.4 ' W

GEAR: Engel 434 START TIME (PDT) :1110 DURATION: 60 min.

BOTTOM DEPTH m: Start: 296 End: 335 Est. Av. Depth: 316

NET DEPTH RANGE m: 49-51 Est. Av. Depth: 50

DIRECTION OF SET °true: 320 SPEED kn:≈3.0 DISTANCE TRAVELLED: 2.4 mi.

SET ON: Target 45-55 m WATER CONDITION: calm TIDE: Ebb (slack)

WIND DIRECTION: -- WIND SPEED: 5 RECORDER: MSS

TIM: _____ TIM: _____ BT: #3 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Very little showing at 45-55 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 17 SET/HAUL NO: 48

LOCATION: off Point Grey AREA: Strait of Georgia

START: Lat. 49 ° 15.8 'N Long. 123 ° 22.1 'W

END: Lat. 49 ° 13.0 'N Long. 123 ° 22.1 'W

GEAR: Engel 434 START TIME (PDT): 1420 DURATION: 45 min.

BOTTOM DEPTH m: Start: 249 End: 238 Est. Av. Depth: 242

NET DEPTH RANGE m: 55-50 Est. Av. Depth: 51

DIRECTION OF SET °true: 190 SPEED kn:≈30 DISTANCE TRAVELLED: 2.7 mi.

SET ON: 45-60 m WATER CONDITION: _____ TIDE: slack

WIND DIRECTION: NW WIND SPEED: 5 RECORDER: MSS

TIM: _____ TIM: _____ BT: #32 OTHER OCEANOGRAPHIC DATA: _____

REMARKS: _____

SOUNDER SUMMARY: Medium layer 146 m to bottom.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 17 SET/HAUL NO: 49

LOCATION: off Gower Point AREA: Strait of Georgia

START: Lat. 49° 22.0'N Long. 123 °35.25 'W

END: Lat. 49° 20.85'N Long. 123 °32 'W

GEAR: Engel 434 START TIME (PDT) : 1719 DURATION: 45 min.

BOTTOM DEPTH m: Start: 176 End: 155 Est. Av. Depth: 170

NET DEPTH RANGE m: 125-132 (41-38 m) off bottom Est. Av. Depth: 128

DIRECTION OF SET °true: 120 SPEED kn: ≈ 3.0 DISTANCE TRAVELLED: 2.2 mi.

SET ON: Target 125-132 m WATER CONDITION: calm TIDE: slack

WIND DIRECTION: NW WIND SPEED: <5 RECORDER:

TTM: TDM: BT: #33 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Very light mass 110 m to bottom, medium layer 146 m to bottom.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 18 SET/HAUL NO: 50

LOCATION: S. of Merry Island AREA: Strait of Georgia

START: Lat. 49 ° 25.3 'N Long. 123 °54.0 'W

END: Lat. 49 ° 24.8 'N Long. 123 °51.9 'W

GEAR: Engel 434 START TIME (PDT): 0817 DURATION: 30 min.

BOTTOM DEPTH m: Start: 203 End: 186 Est. Av. Depth: 190

NET DEPTH RANGE m: Headline 25-35 m of bottom Est. Av. Depth: 165

DIRECTION OF SET °true: 080 SPEED kn: ≈ 3.0 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target 165 m WATER CONDITION: ripple TIDE: Flood

WIND DIRECTION: NW WIND SPEED: 10 RECORDER: MSS

TTM: TDM: BT: #34 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Medium to heavy 128 m to bottom, consistent spotting 50-65 m.

Appendix Table 1 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 18 SET/HAUL NO: 51

LOCATION: mid-strait(Merry I-Winchelsea) AREA: Strait of Georgia

START: Lat. 49° 23.9'N Long. 123° 59.3'W

END: Lat. 49° 23.6'N Long. 123° 57.2'W

GEAR: Engel 434 START TIME (PDT): 1009 DURATION: 30 min.

BOTTOM DEPTH m: Start: 402 End: 402 Est. Av. Depth: 410

NET DEPTH RANGE m: 60-53 Est. Av. Depth: 54

DIRECTION OF SET °true: 113 SPEED kn: ≈3.0 DISTANCE TRAVELLED: mi.

SET ON: 55 m WATER CONDITION: lite chop TIDE: slack

WIND DIRECTION: SE WIND SPEED: 15 RECORDER: MSS

TTM: TDM: BT: #35 OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Light to medium 120-290 m (medium to heavy 130-165 m); net fishing in light spotting 50-60 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 18 SET/HAUL NO: 52

LOCATION: Mid strait--Merry Island-Winchelsea AREA: Strait of Georgia

START: Lat. 49 ° 24.0 ' N Long. 123° 55.8' W

END: Lat. 49 ° 22.0 ' N Long. 123° 56.9' W

GEAR: Engel 434 START TIME (PDT): 1213 DURATION: 30 min.

BOTTOM DEPTH m: Start: 419 End: 369 Est. Av. Depth: 395

NET DEPTH RANGE m: 225-218 Est. Av. Depth: 220

DIRECTION OF SET °true: 113 SPEED kn: ≈3.0 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target 220 m. WATER CONDITION: lite chop TIDE: Ebb

WIND DIRECTION: SE WIND SPEED: 15 RECORDER: MSS

TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS:

SOUNDER SUMMARY: Medium-light 110-290 m; however very dense 128-165 m; small spotting 55-100 m.

Appendix Table 2. Vertical temperature determinations (°C) in the Strait of Georgia. G.B. REED, May 25-June 18, 1976.

Depth (m)	Set number									
	1	2	3	4	6	7	8	9	13	14
0	9.1	9.8	8.5	9.0	9.5	9.8	9.5	10.9	11.6	11.7
10	8.9	8.9	8.5	9.1	9.0	9.5	9.3	10.8	11.2	11.3
20	8.5	8.6	8.4	9.3	9.0	9.3	8.7	9.7	9.6	10.1
30	8.4	8.4	8.4	9.1	9.0	9.1	8.7	9.5	9.3	9.2
40	8.3	8.1	8.0	9.0	9.0	9.0	8.7	9.1	9.0	9.0
50	8.2	8.0	7.6	9.0	8.9	8.9	8.6	9.0	8.6	8.5
60	8.1	8.0	7.6	8.9	8.5	8.5	8.5	8.5	8.5	8.4
80	7.8	7.9	7.4	8.4	8.4	8.0	8.4	8.1	7.7	7.6
100	7.1	7.4	7.3	8.1	8.0	7.7	8.0	7.6	7.5	7.5
120	7.0	7.4	7.4	7.6	7.5	7.3	7.5	7.5	7.5	7.5
140	7.0	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
160	7.0	7.5	7.5	8.1	7.6	7.6	7.5	7.7	7.6	7.5
180	7.0	7.7	7.6			7.9	7.7	7.8	7.7	7.6
200		7.8	7.7			8.0		7.9	7.5	7.6
240		8.0	7.8			8.4		8.0	8.0	7.7
275		8.2	7.9			8.5		8.0	8.0	

Depth (m)	Set number								
	15	16	17	20	21	22	23	26	28
0	11.9	11.5	11.5	13.0	14.5	14.5	14.0	13.7	11.9
10	11.5	11.0	11.0	10.0	10.1	11.0	10.5	13.7	10.5
20	10.0	9.5	8.6	9.5	9.7	9.5	9.0	10.0	9.6
30	9.0	9.5	8.5	9.3	9.5	8.6	8.5	8.5	9.0
40	8.7	8.7	8.1	9.2	8.6	8.0	8.3	8.0	8.5
50	8.5	8.5	8.0	9.0	8.0	7.9	8.2	7.6	8.0
60	8.5	8.3	7.9	8.8	7.9	7.6	8.1	7.5	7.6
80	7.6	7.7	7.5	7.4	7.5	7.5	7.9	7.5	7.4
100	7.5	7.5	7.5	7.4	7.5	7.5	7.9	7.5	7.4
120	7.4	7.5	7.6	7.4	7.5	7.5	7.9	7.5	7.5
140	7.5	7.5	7.6	7.6	7.9	7.6	7.6	7.5	7.5
160	7.5	7.5	7.6	7.7	8.0	7.6	7.7	7.5	7.6
180	7.6	7.8	7.7	7.8	8.0	7.6	7.7	7.6	7.6
200	7.7	8.0	7.8	7.9	7.9	7.8	7.9	7.9	7.7
240	7.8	8.0	7.8	8.0	7.9	7.9	8.0	8.1	-
275	7.9	8.0	7.8	-	7.9	7.9	8.0	8.3	-

Appendix Table 2 (cont'd)

Depth (m)	Set number									
	31	33	34	36	38	39	40	41	43	46
0	13.0	12.0	11.2	12.6	10.0	11.5	12.0	11.2	12.5	10.5
10	10.5	12.0	10.0	10.5	10.0	11.5	11.6	9.3	9.2	9.0
20	9.1	9.2	9.3	9.4	9.5	10.5	9.0	9.1	9.0	8.5
30	8.5	8.9	9.0	9.0	9.1	10.0	7.7	8.6	8.6	8.5
40	8.3	8.6	8.9	8.6	9.0	8.6	7.6	8.1	8.5	8.5
50	8.0	8.4	8.4	8.0	8.9	8.5	7.5	8.0	8.2	8.5
60	7.4	7.9	8.1	7.7	8.7	8.0	7.5	7.9	7.9	8.5
80	7.3	7.5	7.6	7.5	8.1	7.6	7.4	7.6	7.5	8.5
100	7.3	7.4	7.5	7.6	7.6	7.4	7.4	7.6	7.9	7.9
120	7.4	7.4	7.5	7.7	-	7.4	7.5	7.6	8.0	7.9
140	7.5	7.4	7.6	7.8	-	7.4	7.5	8.0	8.0	-
160	7.5	7.6	7.6	7.9	-	7.5	7.5	8.0	8.0	-
180	7.5	7.8	7.7	7.9	-	7.5	7.5	8.0	7.9	-
200	7.6	8.0	7.7	7.9	-	7.5	7.7	8.0	7.9	-
240	8.0	8.0	-	7.9	-	-	7.8	8.0	7.9	-
275	8.2	8.2	-	8.0	-	-	8.0	8.0	8.0	-

Depth (m)	Set number				
	47	48	49	50	51
0	12.0	14.5	15.7	15.0	15.0
10	9.9	10.2	10.5	11.0	10.9
20	9.0	9.0	9.4	9.1	9.5
30	8.6	9.0	8.6	8.4	8.5
40	8.4	8.5	8.2	8.0	8.0
50	8.2	8.4	8.0	7.7	7.6
60	8.0	7.9	8.0	7.5	7.5
80	7.7	7.9	7.7	7.5	7.5
100	7.7	8.0	8.1	7.5	7.5
120	8.0	8.1	8.1	7.5	7.5
140	7.9	8.0	8.1	7.6	7.5
160	8.0	8.0	-	7.7	7.6
180	8.0	8.0	-	7.7	7.7
200	8.0	8.0	-	-	7.8
240	8.0	-	-	-	7.9
275	8.0	-	-	-	8.0

Appendix Table 3. Species composition by set. G.B. REED, May 25-June 18, 1976.

Set number:	1		2		3	
Total catch (kg):	2,930		119		184	
Duration (min):	17		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	2,910	6,600a			159	405
Walleye pollock	8	14	70	153	4	6
Spiny dogfish	11	8	49	35	10	24
Brown cat shark					1	3
Ratfish						
Northern smoothtongue					0.5	23
Eulachon						
Lantern fish						
Northern lampfish					<0.5	31
California headlightfish					<0.5	18
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish					5.5	3
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid	0.5	1			2	4
Glass shrimp					1	-
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	4		5		6	
Total catch (kg):	641		31		407	
Duration (min):	30		30		35	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	485	2,222[a]			369	693[a]
Walleye pollock	115	224			3	4
Spiny dogfish	33	17	31	6	34	9
Brown cat shark						
Ratfish						
Northern smoothtongue						
Eulachon						
Lantern fish						
Northern lampfish						
California headlightfish						
Pacific herring						
Pacific lamprey						
Chinook salmon	8.5	1				
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod					1	1
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid						
Glass shrimp						
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	7		8		9	
Total catch (kg):	20		2,706		140	
Duration (min):	45		30		40	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	11	52	2,141	4,167a	94	269
Walleye pollock	0.5	1	554	1,135a	8	13
Spiny dogfish	5	5	11	13	36	103
Brown cat shark	0.5	2			1	2
Ratfish						
Northern smoothtongue	0.5	9			-	10
Eulachon						
Lantern fish	0.5	13				
Northern lampfish					-	68
California headlightfish					-	2
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin	<0.5	1				
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid					0.5	-
Glass shrimp	<0.5	-				
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	10		11		12	
Total catch (kg):	136		236		650	
Duration (min):	55		62		45	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	103	279	189	557	590	1,125[a]
Walleye pollock	1	2	2	3	60	103
Spiny dogfish	21	59	24	48	5	18
Brown cat shark	8	17	6	13		
Ratfish			1	1		
Northern smoothtongue	2	-	2	-		
Eulachon						
Lantern fish						
Northern lampfish	<0.5	-	0.5	-		
California headlightfish						
Pacific herring						
Pacific lamprey					-	1
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin	<0.5	3				
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish			10	3		
English sole						
Dover sole			0.5	1		
Arrowtooth flounder						
Squid			0.5	1		
Glass shrimp	<0.5	-	0.5	-		
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	13		14		15	
Total catch (kg):	25		100		35	
Duration (min):	60		45		60	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	17	291	83	213	28	338
Walleye pollock	7	16	8	15	1	3
Spiny dogfish	1	9	8	7	3	5
Brown cat shark			1	2	1	2
Ratfish	-	18				
Northern smoothtongue						
Eulachon					<0.5	-
Lantern fish						
Northern lampfish	-	3			-	6
California headlightfish	-	3			-	2
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid			0.5	2	1	3
Glass shrimp	<0.5	-			1	-
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	16		17		18	
Total catch (kg):	50		301		200	
Duration (min):	60		45		45	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	38	157	266	583a	190	659[a]
Walleye pollock	3	6	22	47	3	9
Spiny dogfish	5	11	9	20	5	8
Brown cat shark	1	3	1	2		
Ratfish						
Northern smoothtongue	1	-	1	-		
Eulachon						
Lantern fish						
Northern lampfish	<0.5	52	<0.5	-		
California headlightfish	-	3				
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout			-	1		
Pallid eelpout						
Ribbon barracudina						
Pacific cod					2	1
Pacific tomcod			-	1		
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid			1	-	-	1
Glass shrimp	2	-	<0.5	-		
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	19		20		21	
Total catch (kg):	367		2,172		101	
Duration (min):	45		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	5	10	2,115a	4,769a	94	489
Walleye pollock	340	780a	52	97	6	12
Spiny dogfish	22	17	3	3	1	6
Brown cat shark						
Ratfish						
Northern smoothtongue					-	6
Eulachon						
Lantern fish						
Northern lampfish						
California headlightfish					-	10
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid			2	4	0.5	1
Glass shrimp						
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	22		23		24	
Total catch (kg):	20		21		43	
Duration (min):	30		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	5	88	9	64		
Walleye pollock	11	33	6	11	33	48
Spiny dogfish	1	12	4	3	10	4
Brown cat shark						
Ratfish						
Northern smoothtongue			0.5	-		
Eulachon			<0.5	1		
Lantern fish						
Northern lampfish	0.5	14	1	65		
California headlightfish	<0.5	7				
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid	2	3			0.5	2
Glass shrimp			0.5	-		
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	25		26		27	
Total catch (kg):	1,605		139		130	
Duration (min):	45		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	1,515	3,416a	100	246	65	136
Walleye pollock	85	173	30	64	28	56
Spiny dogfish	5	13	9	6	10	22
Brown cat shark					18	13
Ratfish						
Northern smoothtongue			-	13	<0.5	-
Eulachon						
Lantern fish						
Northern lampfish			-	8	3	-
California headlightfish					<0.5	1
Pacific herring						
Pacific lamprey	-	1				
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish					4	1
English sole						
Dover sole						
Arrowtooth flounder						
Squid					1	2
Glass shrimp					<0.5	-
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	28		29		30	
Total catch (kg):	42		31		89	
Duration (min):	30		3		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	19	61			73	204
Walleye pollock	2	4			14	25
Spiny dogfish	11	27	4	1	2	5
Brown cat shark	3	8				
Ratfish			2	1		
Northern smoothtongue	<0.5	-				
Eulachon						
Lantern fish						
Northern lampfish	1	-				
California headlightfish						
Pacific herring						
Pacific lamprey						
Chinook salmon					-	1
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish	5	2				
English sole						
Dover sole						
Arrowtooth flounder						
Squid					-	1
Glass shrimp	<0.5	-				
Starfish			2	-		
Sponge			23	-		

Appendix Table 3 (cont'd)

Set number:	31		32		33	
Total catch (kg):	59		378		875	
Duration (min):	30		35		49	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	30	277	180	361	759	1,290[a]
Walleye pollock	15	26	138	274	98	203
Spiny dogfish	1	1	58	13	18	10
Brown cat shark						
Ratfish						
Northern smoothtongue	0.5	-				
Eulachon						
Lantern fish						
Northern lampfish	-	59				
California headlightfish	-	2				
Pacific herring						
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid	1	1				
Glass shrimp	0.5	-				
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	34		35		36	
Total catch (kg):	118		1,961		196	
Duration (min):	30		45		60	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	75	436	1,951	4,136a	79	236
Walleye pollock	1	5	5	-	1	2
Spiny dogfish	29	32	5	22	107	258
Brown cat shark	1	4			5	12
Ratfish						
Northern smoothtongue	<0.5	-			1	-
Eulachon	-	1				
Lantern fish	<0.5	-			1	-
Northern lampfish						
California headlightfish						
Pacific herring	11	60			<0.5	1
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout					-	1
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid	<0.5	1			2	-
Glass shrimp						
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	37		38		39	
Total catch (kg):	50		1,898		14	
Duration (min):	30		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	36	129	1,852	3,862a	9	51
Walleye pollock	1	1	26	53	1	1
Spiny dogfish	4	14	20	6		
Brown cat shark	1	3				
Ratfish					<0.5	1
Northern smoothtongue	2	-			<0.5	-
Eulachon						
Lantern fish						
Northern lampfish	<0.5	-			<0.5	-
California headlightfish						
Pacific herring	3	16				
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish					<0.5	2
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout					<0.5	1
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid	1	-			<0.5	1
Glass shrimp	2	-			<0.5	-
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	40		41		42	
Total catch (kg):	33		177		201	
Duration (min):	30		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	13	217	162	610	152	325
Walleye pollock	2	2	3	6	2	3
Spiny dogfish	9	17	4	12	33	95
Brown cat shark	1	5			4	11
Ratfish						
Northern smoothtongue	2	-	4	-	4	-
Eulachon			-	2		
Lantern fish						
Northern lampfish	2	-	2	-	1	-
California headlightfish						
Pacific herring					<0.5	3
Pacific lamprey			-	1		
Chinook salmon						
Sockeye salmon	-	4				
Tadpole snailfish	<0.5	2				
Prickly snailfish	<0.5	1				
Blackfin sculpin	<0.5	4	-	1		
Eelpout						
Pallid eelpout	<0.5	2				
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder					<0.5	1
Squid	2	-			<0.5	-
Glass shrimp			2	-	4	-
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	43		44		45	
Total catch (kg):	88		46		11	
Duration (min):	30		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	61	132	38	205	<0.5	1
Walleye pollock	1	3	1	5		
Spiny dogfish	16	46	4	15	10	8
Brown cat shark	3	8	1	5		
Ratfish						
Northern smoothtongue	3	-	1	-		
Eulachon			-	1	<0.5	1
Lantern fish						
Northern lampfish	1	-	<0.5	-		
California headlightfish						
Pacific herring			-	3		
Pacific lamprey						
Chinook salmon						
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout	-	1				
Ribbon barracudina			-	1		
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid						
Glass shrimp	3	-	1	-		
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	46		47		48	
Total catch (kg):	110		256		236	
Duration (min):	30		60		45	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	104	198	7	14	1	1
Walleye pollock	1	3	239	562a	221	536a
Spiny dogfish	2	13	8	47	13	26
Brown cat shark						
Ratfish						
Northern smoothtongue	<0.5	-				
Eulachon	<0.5	25				
Lantern fish						
Northern lampfish	<0.5	-				
California headlightfish						
Pacific herring			2	12	-	2
Pacific lamprey						
Chinook salmon					2	1
Sockeye salmon						
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod	<0.5	2				
Sablefish						
Lingcod						
Shortraker rockfish						
English sole	<0.5	1				
Dover sole						
Arrowtooth flounder						
Squid						
Glass shrimp						
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	49		50		51	
Total catch (kg):	79		120		338	
Duration (min):	45		30		30	
Species	Wt.	No.	Wt.	No.	Wt.	No.
Pacific hake	70	1,204	85	896	161	412[a]
Walleye pollock	1	3	29	59	150	313[a]
Spiny dogfish	5	12	4	6	27	84
Brown cat shark	2	4				
Ratfish						
Northern smoothtongue			-	1		
Eulachon						
Lantern fish						
Northern lampfish						
California headlightfish						
Pacific herring			-	2		
Pacific lamprey	-	1			-	3
Chinook salmon						
Sockeye salmon			<0.5	35	-	15
Tadpole snailfish						
Prickly snailfish						
Blackfin sculpin						
Eelpout						
Pallid eelpout						
Ribbon barracudina						
Pacific cod						
Pacific tomcod						
Sablefish						
Lingcod						
Shortraker rockfish						
English sole						
Dover sole						
Arrowtooth flounder						
Squid	1	1	1	-		
Glass shrimp						
Starfish						
Sponge						

Appendix Table 3 (cont'd)

Set number:	52		Total[b]	
Total catch (kg):	25		20,940	
Duration (min):	30		1,916	
Species	Wt.	No.	Wt.	No.
Pacific hake	12	111	17,510	43,197
Walleye pollock	7	7	2,419	5,124
Spiny dogfish	2	3	759	1,264
Brown cat shark	-	1	60	121
Ratfish			3	20
Northern smoothtongue	2	-	30	62
Eulachon			2	31
Lantern fish			2	13
Northern lampfish	<0.5	-	17	306
California headlightfish			2	48
Pacific herring			17	99
Pacific lamprey			-	7
Chinook salmon			9	3
Sockeye salmon	-	18	1	72
Tadpole snailfish			<1	4
Prickly snailfish			<0.5	1
Blackfin sculpin			<1	9
Eelpout			-	2
Pallid eelpout			<0.5	4
Ribbon barracudina			-	1
Pacific cod			2	1
Pacific tomcod			<0.5	3
Sablefish			6	3
Lingcod			1	1
Shortraker rockfish			19	6
English sole			<0.5	1
Dover sole			0.5	1
Arrowtooth flounder			<0.5	1
Squid	<0.5	1	22	30
Glass shrimp	1	-	22	-
Starfish			2	-
Sponge			23	-

[a]Calculated weights or numbers.

[b]Totals are a summation of values only and do not represent total catches as weight and numbers are not available for all tows.

Appendix Table 4. Scientific and common names of fishes captured. G.B. REED, May 25-June 18, 1976.

Common name	Scientific name
Pacific hake	Merluccius productus
Walleye pollock	Theragra chalcogramma
Spiny dogfish	Squalus acanthias
Brown cat shark	Apristurus brunneus
Ratfish	Hydolagus colliei
Northern smoothtongue	Leuroglossus stilbius schmidti
Eulachon	Thaleichthys pacificus
Lanternfish	Myctophidae
Northern lampfish	Stenobrachius leucopsarus
California headlightfish	Diaphus theta
Pacific herring	Clupea harengus pallasi
Pacific lamprey	Lampetra tridentatus
Chinook salmon	Oncorhynchus tshawytscha
Sockeye salmon	Oncorhynchus nerka
Tadpole snailfish	Nectoliparis pelagicus
Prickley snailfish	Paraliparis deani
Blackfin sculpin	Malacoctius kincaidi
Eelpout	Zoarcidae
Pallid eelpout	Lycodapus mandibularis
Ribbon barracudina	Notolepis rissoi rissoi
Pacific cod	Gadus macrocephalus
Pacific tomcod	Microgadus proximus
Sablefish	Anoplopoma fimbria
Lingcod	Ophiodon elongatus
Shortraker rockfish	Sebastes borealis
English sole	Parophrys vetulus
Dover sole	Microstomus pacificus
Arrowtooth flounder	Atheresthes stomias
Squid	Loligo spp.
Glass shrimp	Pasiphaea pacificus
Starfish	Asteroidea
Sponge	Porifera

Appendix Table 5. Set information for Isaac Kidd plankton trawl, G.B. REED, May 25-June 18, 1976.

VESSEL: G. B. REED DATE: Yr 76 Mo 05 Day 31 SET/HAUL NO: 1KMT-1

LOCATION: Mid-Strait off Five Fingers AREA: St. of Georgia

START: Lat. 49 ° 21.2' Long. 123 ° 51.6 '

END: Lat. 49 ° 22.5' Long. 123 ° 56.5 '

GEAR: 1KMT START TIME (PDT) : 2120 DURATION: 60 min.

BOTTOM DEPTH m: Start: 415 End: 404 Est. Av. Depth: 409

NET DEPTH RANGE m: 175-150-100 Est. Av. Depth: 125

DIRECTION OF SET °true: 310 SPEED kn: 3 DISTANCE TRAVELLED: 3.5 mi.

SET ON: target-266 m WATER CONDITION: calm TIDE: ebb

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 738 m of wire out. Net towed off to port. Missed target.

SOUNDER SUMMARY: Light spotting 90-165 m, light layer 55 m. Set below light mass (200-260 m). Scatter not layered.

VESSEL: G. B. REED DATE: Yr 76 Mo 05 Day 31 SET/HAUL NO: 1KMT-2

LOCATION: mid-Strait AREA: Strait of Georgia

START: Lat. 49 ° 22.3 ' Long. 123 ° 57.6 '

END: Lat. 49 ° 21.7 ' Long. 123 ° 53.3 '

GEAR: 1KMT START TIME (PDT): 2305 DURATION: 60 min.

BOTTOM DEPTH m: Start: 370 End: 340 Est. Av. Depth: 355

NET DEPTH RANGE m: 15-55 Est. Av. Depth: 25

DIRECTION OF SET °true: 100 SPEED kn: 3 DISTANCE TRAVELLED: 3 mi.

SET ON: Target--55 m WATER CONDITION: calm TIDE: Ebb

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 165 m of wire out

SOUNDER SUMMARY: Very light scatter 200-256 m. Some individual scatter at 128 m. Nothing at 55 m at start of tow. Shallowed up net.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: IKMT-3

LOCATION: mid-Strait off Qualicum Beach AREA: St. of Georgia

START: Lat. 49 ° 25.5' Long. 124 ° 23.9 '

END: Lat. 49 ° 27.4' Long. 124 ° 25.4 '

GEAR: I KMT START TIME (pdt) : 1941 DURATION: 60 min.

BOTTOM DEPTH m: Start: 337 End: 340 Est. Av. Depth: 350

NET DEPTH RANGE m: Est. Av. Depth: 65

DIRECTION OF SET °true: 300 SPEED kn: 3 DISTANCE TRAVELLED: 3.5 mi.

SET ON: 110 m WATER CONDITION: calm TIDE: Flood

WIND DIRECTION: WIND SPEED: RECORDER: AC

TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS: 385 m of wire out--ratio of line to depth = 3.5:1

SOUNDER SUMMARY: Dense school of fish at start of tow, 73-91 m; later from 73-110 m light spotting of fish. Light homogenous layer 120-128 m and 200-300 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 01 SET/HAUL NO: IKMT-4

LOCATION: mid-strait off Sister Is. AREA: St. of Georgia

START: Lat. 49 ° 28.7' Long. 124 ° 29.9 '

END: Lat. 49 ° 30.3 ' Long. 124 ° 30.9 '

GEAR: IKMT START TIME (PDT): 2111 DURATION: 35 min.

BOTTOM DEPTH m: Start: 304 End: Est. Av. Depth: 265

NET DEPTH RANGE m: Est. Av. Depth: 35

DIRECTION OF SET °true: 340 SPEED kn: 3 DISTANCE TRAVELLED: 1.7 mi.

SET ON: 30 m WATER CONDITION: calm TIDE: Flood

WIND DIRECTION: WIND SPEED: RECORDER: AC

TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS: 195 m of wire out.

SOUNDER SUMMARY: At start of tow light scattered spotting 55-90 m. Light layer 90-110 m. Moderate spotting 102-146 m. Dense spotting 238 m to bottom.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 02 SET/HAUL NO: IKMT-5

LOCATION: Vivian Is. to mid-strait AREA: St. of Georgia

START: Lat. 49 ° 48.8' Long. 124 ° 47.5 '

END: Lat. 49 ° 47.7' Long. 124 ° 45.8 '

GEAR: IKMT START TIME (PDT) : 2137 DURATION: 30 min.

BOTTOM DEPTH m: Start: 201 End: 370 Est. Av. Depth: 285

NET DEPTH RANGE m: _____ Est. Av. Depth: _____

DIRECTION OF SET °true: 135 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: 20 m WATER CONDITION: calm TIDE: Flood

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: AC

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 126 m of wire out.

SOUNDER SUMMARY: Light to moderate spotting 0-15 m at start. Moderate to dense layer 91-108 m diminishing towards end of run. Dense layer 165-bottom (201).

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 07 SET/HAUL NO: IKMT-6

LOCATION: Merry Island AREA: St. of Georgia

START: Lat. 49 ° 21.5 ' Long. 123 ° 47.9 '

END: Lat. 49 ° 22.5 ' Long. 123 ° 51.7 '

GEAR: IKMT START TIME (PDT): 2005 DURATION: 30 min.

BOTTOM DEPTH m: Start: 399 End: 382 Est. Av. Depth: 390

NET DEPTH RANGE m: 150-180 Est. Av. Depth: 180

DIRECTION OF SET °true: 310 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target--233 WATER CONDITION: Ripple TIDE: Flood

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 700 m of wire out.

SOUNDER SUMMARY: Very light homogenous mass 110-238 m. Distinct medium layer 100-132; 165-201. Lower layer appears denser than top layer.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 07 SET/HAUL NO: IKMT-7
LOCATION: S. Malaspina Strait AREA: St. of Georgia
START: Lat. 49° 33.8' Long. 124° 7.8'
END: Lat. 49° 35.1' Long. 124° 8.7'
GEAR: IKMT START TIME (PDT): 1021 DURATION: 30 min.
BOTTOM DEPTH m: Start: 366 End: 330 Est. Av. Depth: 350
NET DEPTH RANGE m: Est. Av. Depth: 12
DIRECTION OF SET °true: 330 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.
SET ON: Target--15 WATER CONDITION: calm TIDE: Flood
WIND DIRECTION: WIND SPEED: RECORDER: MSS
TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:
REMARKS: 60 m of wire out.
SOUNDER SUMMARY: Fairly dense layer to 55 m, some faint individual spotting to 128 m. Medium homogenous mass 128-350 m, constant throughout tow.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 08 SET/HAUL NO: IKMT-8
LOCATION: Grief Pt. (mid Strait) AREA: Malaspina Strait
START: Lat. 49° 47.0' Long. 124° 32.4'
END: Lat. 49° 46.1' Long. 124° 30.5'
GEAR: IKMT START TIME (PDT): 2026 DURATION: 30 min.
BOTTOM DEPTH m: Start: 318 End: 322 Est. Av. Depth: 320
NET DEPTH RANGE m: 50 Est. Av. Depth: 50
DIRECTION OF SET °true: 123 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.
SET ON: Target--50 m WATER CONDITION: Light Chop TIDE: Flood
WIND DIRECTION: WIND SPEED: RECORDER: MSS
TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:
REMARKS: 200 m of wire out.
SOUNDER SUMMARY: Light layer 91-146 m. Very light homogenous layer 180-274 m. Some spotting 73-91 m. No surface layer or where net is.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 08 SET/HAUL NO: IKMT-9

LOCATION: S. Grief Pt. (mid strait) AREA: Malaspina Strait

START: Lat. 49 ° 45.5' Long. 124 ° 29.4 '

END: Lat. 49 ° 44.8' Long. 124 ° 27.4 '

GEAR: IKMT START TIME (PDT) : 2133 DURATION: 30 min.

BOTTOM DEPTH m: Start: 305 End: 310 Est. Av. Depth: 307

NET DEPTH RANGE m: 15 Est. Av. Depth: 15

DIRECTION OF SET °true: 117 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target--15 WATER CONDITION: ripple TIDE: Flood

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 60 m of wire out.

SOUNDER SUMMARY: Light layer 55-95 m; homogenous mass 200-274 m, little spotting between layers. No surface layer.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 09 SET/HAUL NO: IKMT-10

LOCATION: Mouth of Jervis Inlet AREA: Malaspina St.

START: Lat. 49 ° 39.6' Long. 124 ° 15.8 '

END: Lat. 49 ° 38.3' Long. 124 ° 14.6 '

GEAR: IKMT START TIME (PDT): 2012 DURATION: 30 min.

BOTTOM DEPTH m: Start: 340 End: 342 Est. Av. Depth: 340

NET DEPTH RANGE m: 225-200 Est. Av. Depth: 210

DIRECTION OF SET °true: 130 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target--128 WATER CONDITION: ripple TIDE: Ebb

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 512 m of wire out.

SOUNDER SUMMARY: Faint homogenous layer 160 m to bottom. Faint layer ~128 m.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 10 SET/HAUL NO: IKMT-11

LOCATION: S. Malaspina St. AREA: Malaspina St.

START: Lat. 49 • 30.5' Long. 124 • 6.1'

END: Lat. 49 • 33.7' Long. 124 • 7.8'

GEAR: IKMT START TIME (PDT): 1540 DURATION: 60 min.

BOTTOM DEPTH m: Start: 435 End: 369 Est. Av. Depth: _____

NET DEPTH RANGE m: 175 Est. Av. Depth: 175

DIRECTION OF SET °true: 340 SPEED kn: 3 DISTANCE TRAVELLED: 3.3 mi.

SET ON: _____ WATER CONDITION: Choppy TIDE: _____

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 872 m of wire out

SOUNDER SUMMARY: Homogenous layer 125-330 m. Little or no layering.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 10 SET/HAUL NO: IKMT-12

LOCATION: S. Malaspina St. AREA: Malaspina St.

START: Lat. 49 • 33.4 ' Long. 124 • 8.0 '

END: Lat. 49 • 32.0 ' Long. 124 • 7.1 '

GEAR: IKMT START TIME (PDT): 1743 DURATION: 49 min.

BOTTOM DEPTH m: Start: 369 End: 391 Est. Av. Depth: _____

NET DEPTH RANGE m: _____ Est. Av. Depth: _____

DIRECTION OF SET °true: 160 SPEED kn: 2.6 DISTANCE TRAVELLED: 1.5 mi.

SET ON: _____ WATER CONDITION: _____ TIDE: _____

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: _____

TIM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 1150 m of wire out. Lost net and depressor. Hit bottom.

SOUNDER SUMMARY:

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 14 SET/HAUL NO: IKMT-13

LOCATION: Mid-strait Pt. Grey AREA: St. of Georgia

START: Lat. 49 ° 13.2' Long. 123 ° 29.7 '

END: Lat. 49 ° 14.0' Long. 123 ° 31.6 '

GEAR: IKMT START TIME (PDT) : 2019 DURATION: 30 min.

BOTTOM DEPTH m: Start: 333 End: 358 Est. Av. Depth: _____

NET DEPTH RANGE m: _____ Est. Av. Depth: 15

DIRECTION OF SET °true: 290 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target--27 WATER CONDITION: ripple TIDE: Ebb

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: _____

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 90 m of wire out.

SOUNDER SUMMARY: Moderate spotting surface to 128 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 14 SET/HAUL NO: IKMT-14

LOCATION: mid-strait Thrasher Rock AREA: St. of Georgia

START: Lat. 49 ° 15.3 ' Long. 123 ° 34.7 '

END: Lat. 49 ° 16.5 ' Long. 123 ° 36.7 '

GEAR: IKMT START TIME (PDT): 2133 DURATION: 30 min.

BOTTOM DEPTH m: Start: 365 End: 304 Est. Av. Depth: _____

NET DEPTH RANGE m: _____ Est. Av. Depth: 70 m

DIRECTION OF SET °true: 290 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target--90 m WATER CONDITION: ripple TIDE: Ebb

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: _____

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 360 m of wire out.

SOUNDER SUMMARY: Light scatter 10-36 m. Light spotting 36-100 m. Moderate spotting 160-250 m.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 15 SET/HAUL NO: IKMT-15

LOCATION: S. Malaspina St. AREA: St. of Georgia

START: Lat. 49 • 30.0 ' Long. 124 • 5.6 '

END: Lat. 49 • 29.3 ' Long. 124 • 5.5 '

GEAR: IKMT START TIME (PDT) : 1904 DURATION: 30 min.

BOTTOM DEPTH m: Start: 430 End: _____ Est. Av. Depth: _____

NET DEPTH RANGE m: 70-90 Est. Av. Depth: 85

DIRECTION OF SET °true: 160 SPEED kn: 3 DISTANCE TRAVELLED: 0.8 mi.

SET ON: Target--60 m WATER CONDITION: light chop TIDE: Flood

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TIM: _____ TIM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 210 m of wire out.

SOUNDER SUMMARY: Net fishing bottom of light surface layer. Homogenous mass 90-293 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 15 SET/HAUL NO: IKMT-16

LOCATION: S. Malaspina St. AREA: St. of Georgia

START: Lat. 49 • 28.2 ' Long. 124 • 5.8 '

END: Lat. 49 • 26.8 ' Long. 124 • 4.8 '

GEAR: IKMT START TIME (PDT): 2013 DURATION: 30 min.

BOTTOM DEPTH m: Start: 388 End: 390 Est. Av. Depth: 390

NET DEPTH RANGE m: 60-90 Est. Av. Depth: 85

DIRECTION OF SET °true: 160 SPEED kn: _____ DISTANCE TRAVELLED: _____ mi.

SET ON: Target--146 WATER CONDITION: _____ TIDE: Flood

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TIM: _____ TIM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 360 m of wire out. Missed target.

SOUNDER SUMMARY: Light layer 55-91 m. Homogenous mass 146-311 m was medium to heavy.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: IKMT-17

LOCATION: Porlier Pass AREA: St. of Georgia

START: Lat. 49° 4.6 ' Long. 123 ° 30.8 '

END: Lat. 49° 3.4 ' Long. 123 ° 30.2 '

GEAR: IKMT START TIME (PDT) : 1922 DURATION: 30 min.

BOTTOM DEPTH m: Start: 270 End: 330 Est. Av. Depth: _____

NET DEPTH RANGE m: _____ Est. Av. Depth: _____

DIRECTION OF SET °true: 150 SPEED kn: _____ DISTANCE TRAVELLED: 1.4 mi.

SET ON: Target--80 m WATER CONDITION: _____ TIDE: Flood

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: MSS

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 250 m of wire out.

SOUNDER SUMMARY: Light scatter 65-88 m, 153-220 m. Moderate spotting 220-bottom. Target layer has disappeared end of tow.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 16 SET/HAUL NO: IKMT-18

LOCATION: Active Pass AREA: St. of Georgia

START: Lat. 48 ° 56.7' Long. 123 ° 19.6 '

END: Lat. 48 ° 55.6 ' Long. 123 ° 17.2 '

GEAR: IKMT START TIME (PDT): 2117 DURATION: 30 min.

BOTTOM DEPTH m: Start: 190 End: 183 Est. Av. Depth: _____

NET DEPTH RANGE m: _____ Est. Av. Depth: _____

DIRECTION OF SET °true: 130 SPEED kn: 3 DISTANCE TRAVELLED: _____ mi.

SET ON: Target--94 m WATER CONDITION: _____ TIDE: _____

WIND DIRECTION: _____ WIND SPEED: _____ RECORDER: _____

TTM: _____ TDM: _____ BT: _____ OTHER OCEANOGRAPHIC DATA: _____

REMARKS: 380 m of wire out.

SOUNDER SUMMARY: Light scatter 75-183 m.

Appendix Table 5 (cont'd)

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 17 SET/HAUL NO: IKMT-19

LOCATION: Halibut Bank AREA: St. of Georgia

START: Lat. 49° 20.3' Long. 123 ° 40.0'

END: Lat. 49° 19.3' Long. 123 ° 38.4'

GEAR: IKMT START TIME (PDT) : 1954 DURATION: 30 min.

BOTTOM DEPTH m: Start: 225 End: 271 Est. Av. Depth: 250

NET DEPTH RANGE m: Est. Av. Depth:

DIRECTION OF SET °true: 130 SPEED kn: 3 DISTANCE TRAVELLED: 1.5 mi.

SET ON: Target--80 m WATER CONDITION: Calm TIDE: Flood

WIND DIRECTION: WIND SPEED: RECORDER:

TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS: 300 m of wire out.

SOUNDER SUMMARY: Light scatter layer 75-117 m then moderate spotting to bottom 225 m.

VESSEL: G. B. REED DATE: Yr 76 Mo 06 Day 17 SET/HAUL NO: IKMT-20

LOCATION: Halibut Bank AREA: St. of Georgia

START: Lat. 49 ° 19.6 ' Long. 123° 38.7 '

END: Lat. 49 ° 20.5 ' Long. 123° 40.6 '

GEAR: IKMT START TIME (PDT): 2056 DURATION: 30 min.

BOTTOM DEPTH m: Start: 252 End: 209 Est. Av. Depth:

NET DEPTH RANGE m: Est. Av. Depth:

DIRECTION OF SET °true: SPEED kn: 3 DISTANCE TRAVELLED: 1.5' mi.

SET ON: Target--80 m WATER CONDITION: Calm TIDE: Flood

WIND DIRECTION: WIND SPEED: RECORDER:

TTM: TDM: BT: OTHER OCEANOGRAPHIC DATA:

REMARKS: 400 m of wire out.

SOUNDER SUMMARY: Light scatter 73-90 m, 150-252 m.

Appendix Table 6. Species composition by volumea (cc), by numbers and by set using Isaac-Kidd midwater trawl. G.B. REED. May 25-June 18, 1976.

Set number	1		2		3		4		5	
Total volume (cc)	2600		4850		3200		2600		1300	
Duration (min)	60		60		60		35		30	
Ave. Net Depth (m)	125		25		65		35		20	
Species	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.
Northern smoothtongue		9		15						
Northern lampfish		19		8		2				
Rockfish sp.						3				
Walleye pollock				7		5				
Pacific herring										
Pallid eelpout		3								
Tadpole snailfish		3								
Smelt				3						
Poachers				2						
Sole sp.										
Soft sculpin										
Tadpole sculpin										
Pacific hake										
Bigeye lanternfish										
Larval fish (unid.)	20		27		160		260			
Pacific lamprey										
Euphausiids	80		162		1920		1300		325	
Copepods	80		81		640		520		845	
Glass shrimp	60		108							
Amphipods	120		108		480		520		130	
Comb jellies										
Arrow worms										
Pelagic octopus										
Jellyfish										

Appendix Table 6 (cont'd)

Set number	6		7		8		9		10	
Total volume (cc)	780		680		550		420		415	
Duration (min)	30		30		30		30		30	
Ave. Net Depth (m)	180		12		50		15		210	
Species	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.
Northern smoothtongue										6
Northern lampfish										
Rockfish sp.										3
Walleye pollock										
Pacific herring										12
Pallid eelpout										10
Tadpole snailfish										3
Smelt										
Poachers										
Sole sp.										
Soft sculpin										
Tadpole sculpin										
Pacific hake										
Bigeye lanternfish										
Larval fish (unid.)										1
Pacific lamprey			34						34	
Euphausiids	30		102		275					
Copepods			340				378			
Glass shrimp	45						21		34	
Amphipods			170				13		17	
Comb jellies									255	
Arrow worms			34							
Pelagic octopus									80	
Jellyfish										

Appendix Table 6 (cont'd)

Set number	11		13		14		15		16	
Total volume (cc)	600		1800		2440		200		600	
Duration (min)	60		30		30		30		30	
Ave. Net Depth (m)	175		15		70		85		85	
Species	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.
Northern smoothtongue						18		2		
Northern lampfish						6				
Rockfish sp.				11		12		1		
Walleye pollock				4		2				
Pacific herring						17				
Pallid eelpout						2				
Tadpole snailfish										
Smelt				2						
Poachers										
Sole sp.				1				1		
Soft sculpin										
Tadpole sculpin										
Pacific hake						1				
Bigeye lanternfish										
Larval fish (unid.)	60									
Pacific lamprey						1		1		
Euphausiids	240		1764				30		300	
Copepods										
Glass shrimp	120				732		30		60	
Amphipods	30				244		30			
Comb jellies	90				732		100		120	
Arrow worms										
Pelagic octopus										
Jellyfish										

Appendix Table 6 (cont'd)

Set number	17		18		19		20		Total	
Total volume (cc)	1000		800		300		800		25935	
Duration (min)	30		30		30		30			
Ave. Net Depth (m)	80		94		80		80			
Species	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.	Vol.	No.
Northern smoothtongue										50
Northern lampfish				1						36
Rockfish sp.										30
Walleye pollock										18
Pacific herring										17
Pallid eelpout										15
Tadpole snailfish										6
Smelt										5
Poachers										2
Sole sp.										2
Soft sculpin				1						1
Tadpole sculpin				1						1
Pacific hake										1
Bigeye lanternfish										1
Larval fish (unid.)									595	
Pacific lamprey										2
Euphausiids	300		40		180				7780	
Copepods	100		80		30				3094	
Glass shrimp			400		30		640		2280	
Amphipods	200				30				2092	
Comb jellies	200		120						885	
Arrow worms	100		40						174	
Pelagic octopus									80	
Jellyfish			80						80	

[a]Volumes for sets 1 to 20 inclusive are prorated from percent present in total catch.

Appendix Table 7. Scientific and common names of fishes and invertebrates captured using an Isaac-Kidd midwater trawl. G.B. REED, May 25-June 18, 1976.

Common name	Scientific name
Northern smoothtongue	Leuroglossus stilbius schmidti
Northern lampfish	Stenobrachius leucopsarus
Rockfish sp.	Scorpaenidae
Walleye pollock	Theragra chalcogramma
Pacific herring	Clupea harengus pallasi
Pallid eelpout	Lycodapus mandibularis
Tadpole snailfish	Nectoliparis pelagicus
Smelt	Osmeridae
Poachers	Agonidae
Sole sp.	Pleuronectidae
Soft sculpin	Gilbertidia sigalutes
Tadpole sculpin	Psychrolutes paradoxus
Pacific hake	Merluccius productus
Bigeye lanternfish	Protomyctophum thompsoni
Larval fish (unid.)	
Pacific lamprey	Lampetra tridentatus
Euphausiids	Euphausiacea
Copepods	Copepoda
Glass shrimp	Pasiphaea pacifica
Amphipods	Amphipoda
Comb jellies	Ctenophora
Arrow worms	Sagitta elegans
Pelagic octopus	Rossiea
Jellyfish	Scyhozoa

Appendix Table 8. Length frequency of fish species caught using the Isaac-Kidd midwater trawl. G.B. REED, May 25-June 18, 1976.

Fork length	Set number											
	N. smoothtongue						N. lampfish					
(cm)	1	2	10	14	15	T	1	2	3	14	18	T
0.7	-	-	-	-	-	-	-	-	-	-	-	-
0.8	-	-	-	-	-	-	-	-	-	-	-	-
0.9	-	-	-	-	-	-	-	-	-	-	-	-
1.0	-	-	-	-	-	-	-	-	-	-	-	-
1.1	-	-	-	-	-	-	-	-	-	-	-	-
1.2	-	-	-	-	-	-	-	-	-	-	-	-
1.3	-	-	-	-	-	-	-	-	-	-	-	-
1.4	-	-	-	-	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	-	-	-	-	-	-
1.6	-	-	-	-	-	-	-	-	-	-	-	-
1.7	-	-	-	-	-	-	-	-	-	-	-	-
1.8	-	-	-	-	-	-	-	-	-	-	-	-
1.9	-	-	-	-	-	-	-	-	-	-	-	-
2.0	-	-	-	-	-	-	-	-	-	-	-	-
2.1	-	-	-	-	-	-	-	-	-	-	-	-
2.2	-	-	-	-	-	-	-	-	-	-	-	-
2.3	-	-	-	-	-	-	-	-	-	-	-	-
2.4	-	-	-	-	-	-	-	-	-	-	-	-
2.5	-	-	-	-	-	-	-	-	-	-	-	-
2.6	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	1	-	-	-	-	1
2.8	-	-	-	-	-	-	0	-	-	-	-	0
2.9	-	-	-	-	-	-	0	-	-	-	-	0
3.0	-	1	-	-	-	1	0	-	-	-	-	0
3.1	-	0	-	-	-	0	0	-	-	-	-	0
3.2	-	0	-	-	-	0	0	-	-	-	-	0
3.3	-	1	-	-	-	1	1	1	-	1	1	4
3.4	-	0	-	-	-	0	0	0	-	0	-	0
3.5	-	0	-	-	-	0	2	0	-	1	-	3
3.6	-	0	-	-	-	0	0	1	-	1	-	2
3.7	-	0	-	1	-	1	0	1	-	0	-	1
3.8	-	0	-	0	-	0	1	0	-	1	-	2
3.9	-	0	1	0	-	1	0	0	-	0	-	0
4.0	-	1	0	0	-	1	2	1	-	2	-	5
4.1	-	0	0	1	-	1	0	1	-	-	-	1
4.2	2	2	0	0	-	4	1	0	2	-	-	3
4.3	1	1	2	1	-	5	0	1	-	-	-	1
4.4	0	0	0	1	-	1	0	0	-	-	-	0
4.5	1	0	0	0	-	1	1	0	-	-	-	1
4.6	0	2	1	1	-	4	1	0	-	-	-	1
4.7	0	2	0	2	-	4	1	0	-	-	-	1
4.8	0	3	0	1	1	5	0	1	-	-	-	1
4.9	0	0	0	0	0	0	0	0	-	-	-	0

Appendix Table 8 (cont'd)

Fork length (cm)	Set number											
	N. smoothtongue						N. lampfish					
	1	2	10	14	15	T	1	2	3	14	18	T
5.0	2	0	1	0	0	3	1	0	-	-	-	1
5.1	1	0	0	0	0	1	0	0	-	-	-	0
5.2	0	0	0	1	0	1	0	0	-	-	-	0
5.3	0	0	0	0	0	0	1	0	-	-	-	1
5.4	0	0	0	2	0	2	0	0	-	-	-	0
5.5	0	0	0	0	0	0	0	0	-	-	-	0
5.6	0	0	0	0	0	0	0	0	-	-	-	0
5.7	0	0	0	0	0	0	1	0	-	-	-	1
5.8	0	1	0	0	0	1	1	0	-	-	-	1
5.9	0	0	0	0	0	0	0	0	-	-	-	0
6.0	1	0	0	0	0	1	0	0	-	-	-	0
6.1	0	0	0	0	0	0	0	0	-	-	-	0
6.2	0	0	1	0	0	1	0	1	-	-	-	1
6.3	0	0	-	0	0	0	0	-	-	-	-	0
6.4	0	0	-	2	0	2	0	-	-	-	-	0
6.5	0	0	-	1	0	1	2	-	-	-	-	2
6.6	0	0	-	0	1	1	0	-	-	-	-	0
6.7	0	0	-	0	-	0	0	-	-	-	-	0
6.8	1	0	-	0	-	1	0	-	-	-	-	0
6.9	-	0	-	0	-	0	0	-	-	-	-	0
7.0	-	0	-	1	-	1	0	-	-	-	-	0
7.5	-	0	-	0	-	0	0	-	-	-	-	0
7.6	-	0	-	0	-	0	0	-	-	-	-	0
7.7	-	0	-	0	-	0	1	-	-	-	-	1
8.2	-	0	-	1	-	1	1	-	-	-	-	1
8.3	-	0	-	0	-	0	-	-	-	-	-	-
8.4	-	0	-	0	-	0	-	-	-	-	-	-
8.5	-	0	-	0	-	0	-	-	-	-	-	-
8.6	-	0	-	0	-	0	-	-	-	-	-	-
8.7	-	0	-	0	-	0	-	-	-	-	-	-
8.8	-	0	-	0	-	0	-	-	-	-	-	-
8.9	-	0	-	0	-	0	-	-	-	-	-	-
9.0	-	0	-	0	-	0	-	-	-	-	-	-
9.1	-	0	-	1	-	1	-	-	-	-	-	-
9.2	-	0	-	1	-	1	-	-	-	-	-	-
9.3	-	0	-	-	-	0	-	-	-	-	-	-
9.7	-	1	-	-	-	1	-	-	-	-	-	-
Total	9	15	6	18	2	50	19	8	2	6	1	36

Appendix Table 8 (cont'd)

Fork length (cm)	Set number													
	Rockfish (unid.)					Walleye pollock				Pacific herring	Pallid eelpout			
	3	10	13	15	T	2	3	13	T	11	1	11	14	T
0.7	1	-	-	-	1	-	-	-	-	-	-	-	-	-
0.8	1	-	-	-	1	-	-	-	-	-	-	-	-	-
0.9	1	-	2	-	3	-	-	-	-	-	-	-	-	-
1.0	-	1	1	-	2	2	-	-	2	-	-	-	-	-
1.1	-	0	4	-	4	0	-	-	0	-	-	-	-	-
1.2	-	0	3	-	3	0	-	-	0	-	-	-	-	-
1.3	-	0	1	1	2	0	1	-	1	1	-	-	-	-
1.4	-	0	-	-	0	1	1	1	3	0	-	-	-	-
1.5	-	0	-	-	0	3	0	2	5	1	-	-	-	-
1.6	-	2	-	-	2	1	0	0	1	0	-	-	-	-
1.7	-	-	-	-	-	-	1	0	1	0	-	-	-	-
1.8	-	-	-	-	-	-	1	0	1	0	-	-	-	-
1.9	-	-	-	-	-	-	1	0	1	0	-	-	-	-
2.0	-	-	-	-	-	-	-	0	0	0	-	-	-	-
2.1	-	-	-	-	-	-	-	0	0	0	-	-	-	-
2.2	-	-	-	-	-	-	-	0	0	2	-	1	-	1
2.3	-	-	-	-	-	-	-	0	0	1	-	0	-	0
2.4	-	-	-	-	-	-	-	0	0	2	-	0	-	0
2.5	-	-	-	-	-	-	-	0	0	3	-	1	-	1
2.6	-	-	-	-	-	-	-	0	0	1	-	1	-	1
2.7	-	-	-	-	-	-	-	0	0	1	-	0	-	0
2.8	-	-	-	-	-	-	-	0	0	-	-	0	-	0
2.9	-	-	-	-	-	-	-	0	0	-	-	0	-	0
3.0	-	-	-	-	-	-	-	0	0	-	-	0	-	0
3.1	-	-	-	-	-	-	-	0	0	-	-	0	-	0
3.2	-	-	-	-	-	-	-	0	0	-	-	0	-	0
3.3	-	-	-	-	-	-	-	0	0	-	-	0	-	0
3.4	-	-	-	-	-	-	-	0	0	-	-	0	-	0
3.5	-	-	-	-	-	-	-	1	1	-	-	0	-	0
3.6	-	-	-	-	-	-	-	-	-	-	-	0	-	0
3.7	-	-	-	-	-	-	-	-	-	-	-	0	-	0
3.8	-	-	-	-	-	-	-	-	-	-	-	0	-	0
3.9	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.0	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.1	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.2	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.3	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.4	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.5	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.6	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.7	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.8	-	-	-	-	-	-	-	-	-	-	-	0	-	0
4.9	-	-	-	-	-	-	-	-	-	-	-	0	-	0

Appendix Table 8 (cont'd)

Fork length	Set number													
	Rockfish (unid.)					Walleye pollock				Pacific herring	Pallid eelpout			
(cm)	3	10	13	15	T	2	3	13	T	11	1	11	14	T
5.0	-	-	-	-	-	-	-	-	-	-	-	0	-	0
5.1	-	-	-	-	-	-	-	-	-	-	-	0	-	0
5.2	-	-	-	-	-	-	-	-	-	-	-	0	-	0
5.3	-	-	-	-	-	-	-	-	-	-	-	0	-	0
5.4	-	-	-	-	-	-	-	-	-	-	-	0	-	0
5.5	-	-	-	-	-	-	-	-	-	-	-	0	-	0
5.6	-	-	-	-	-	-	-	-	-	-	-	0	1	1
5.7	-	-	-	-	-	-	-	-	-	-	-	0	0	0
5.8	-	-	-	-	-	-	-	-	-	-	-	0	0	0
5.9	-	-	-	-	-	-	-	-	-	-	-	0	0	0
6.0	-	-	-	-	-	-	-	-	-	-	-	2	0	2
6.1	-	-	-	-	-	-	-	-	-	-	-	0	0	0
6.2	-	-	-	-	-	-	-	-	-	-	-	1	0	1
6.3	-	-	-	-	-	-	-	-	-	-	-	0	0	0
6.4	-	-	-	-	-	-	-	-	-	-	-	1	0	1
6.5	-	-	-	-	-	-	-	-	-	-	-	0	1	1
6.6	-	-	-	-	-	-	-	-	-	-	-	0	-	0
6.7	-	-	-	-	-	-	-	-	-	-	-	0	-	0
6.8	-	-	-	-	-	-	-	-	-	-	-	0	-	0
6.9	-	-	-	-	-	-	-	-	-	-	-	0	-	0
7.0	-	-	-	-	-	-	-	-	-	-	-	0	-	0
7.5	-	-	-	-	-	-	-	-	-	-	1	1	-	2
7.6	-	-	-	-	-	-	-	-	-	-	0	0	-	0
7.7	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.2	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.3	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.4	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.5	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.6	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.7	-	-	-	-	-	-	-	-	-	-	0	0	-	0
8.8	-	-	-	-	-	-	-	-	-	-	0	1	-	1
8.9	-	-	-	-	-	-	-	-	-	-	1	0	-	1
9.0	-	-	-	-	-	-	-	-	-	-	0	0	-	0
9.1	-	-	-	-	-	-	-	-	-	-	0	1	-	1
9.2	-	-	-	-	-	-	-	-	-	-	0	-	-	0
9.3	-	-	-	-	-	-	-	-	-	-	1	-	-	1
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	3	11	1	18	7	5	4	16	12	3	10	2	15

Appendix Table 8 (cont'd)

Fork length	Set number													
	Tadpole snailfish			Smelt			Poachers	Sole (unid.)			Soft sculpin	Tadpole sculpin	Bigeye lanternfish	Pacific hake
(cm)	1	10	T	2	13	T	2	13	15	T	18	18	10	14
0.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3	-	-	-	-	-	-	-	-	1	1	-	-	-	-
1.4	-	-	-	1	-	1	1	-	-	0	-	-	-	-
1.5	-	-	-	0	-	0	1	-	-	0	-	-	-	-
1.6	-	-	-	1	-	1	-	-	-	0	-	-	-	-
1.7	-	-	-	1	-	1	-	-	-	0	-	-	-	-
1.8	-	-	-	-	-	0	-	-	-	0	-	-	-	-
1.9	-	-	-	-	-	0	-	-	-	0	-	-	-	-
2.0	-	-	-	-	-	0	-	-	-	0	-	-	-	-
2.1	-	-	-	-	-	0	-	-	-	0	-	-	-	-
2.2	-	-	-	-	-	0	-	-	-	0	-	-	-	-
2.3	-	-	-	-	2	2	-	-	-	0	-	-	-	-
2.4	-	-	-	-	-	-	-	-	-	0	-	-	-	-
2.5	-	-	-	-	-	-	-	1	-	1	-	-	-	-
2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.0	-	-	-	-	-	-	-	-	-	-	1	1	-	-
3.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.3	-	1	1	-	-	-	-	-	-	-	-	-	-	-
3.4	-	0	0	-	-	-	-	-	-	-	-	-	1	-
3.5	2	0	2	-	-	-	-	-	-	-	-	-	-	1
3.6	1	0	1	-	-	-	-	-	-	-	-	-	-	-
3.7	-	1	1	-	-	-	-	-	-	-	-	-	-	-
3.8	-	0	0	-	-	-	-	-	-	-	-	-	-	-
3.9	-	0	0	-	-	-	-	-	-	-	-	-	-	-
4.0	-	0	0	-	-	-	-	-	-	-	-	-	-	-
4.1	-	0	0	-	-	-	-	-	-	-	-	-	-	-
4.2	-	1	1	-	-	-	-	-	-	-	-	-	-	-
4.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix Table 8 (cont'd)

Fork length	Tadpole snailfish			Smelt			Poachers	Sole (unid.)			Soft sculpin	Tadpole sculpin	Bigeye lanternfish	Pacific hake
	Set number													
(cm)	1	10	T	2	13	T	2	13	15	T	18	18	10	14
5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	3	6	3	2	5	2	1	1	2	1	1	1	1

Appendix Table 9. Length frequency of Pacific hake. G.B. REED, May 25-June 18, 1976.

Fork Length (cm)	Set Number														
	1			3			4			6			7		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	12	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	0	-	-	-	-	-	-	1	-	1
17	-	-	-	-	-	0	-	-	-	-	-	-	0	-	0
18	-	-	-	-	-	0	-	-	-	-	-	-	0	-	0
19	-	-	-	-	1	1	-	-	-	-	-	-	0	-	0
20	-	-	-	1	0	1	-	-	-	-	-	-	0	-	0
21	-	-	-	1	0	1	-	-	-	-	-	-	1	-	1
22	-	-	-	3	1	4	-	-	-	-	-	-	2	4	6
23	-	-	-	2	2	4	-	-	-	-	-	-	4	2	6
24	-	1	1	5	3	8	-	-	-	-	-	-	5	2	7
25	-	0	0	4	3	7	-	-	-	-	-	-	4	2	6
26	-	0	0	5	1	6	-	-	-	-	-	-	5	2	7
27	-	0	0	2	2	4	-	-	-	-	-	-	1	1	2
28	-	2	2	5	1	6	-	-	-	-	-	-	0	0	0
29	-	0	0	0	1	1	-	-	-	-	-	-	0	1	1
30	-	0	0	0	0	0	-	-	-	-	-	-	0	0	0
31	3	0	3	0	0	0	-	-	-	-	-	-	0	0	0
32	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0
33	3	0	3	0	0	0	-	-	-	-	-	-	0	0	0
34	2	4	6	0	1	1	-	-	-	-	-	-	0	0	0
35	10	1	11	0	0	0	-	-	-	-	-	-	0	0	0
36	10	5	15	1	2	3	-	-	-	-	-	-	0	0	0
37	22	13	35	2	3	5	-	-	-	-	-	-	0	0	0
38	25	13	38	3	1	4	-	-	-	1	-	1	0	0	0
39	35	11	46	4	5	9	2	0	2	2	1	3	0	0	0
40	38	18	56	10	4	14	4	1	5	1	2	3	1	0	1
41	29	9	38	18	3	21	6	2	8	5	4	9	1	0	1
42	45	14	59	25	6	31	18	2	20	18	5	23	0	0	0
43	55	8	63	39	6	45	29	3	32	25	7	32	2	0	2
44	48	18	66	43	15	58	37	14	51	28	13	41	2	0	2
45	20	21	41	32	9	41	39	6	45	26	16	42	4	1	5
46	27	21	48	25	11	36	19	11	30	17	10	27	0	0	0
47	14	10	24	11	4	15	14	9	23	7	16	23	1	0	1
48	5	6	11	4	1	5	6	6	12	6	9	15	0	1	1
49	0	2	2	4	1	5	1	5	6	1	4	5	1	-	1

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	1			3			4			6			7		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	0	1	1	1	1	2	0	4	4	1	3	4	1	-	1
51	1	2	3	0	1	1	2	1	3	-	1	1	-	-	-
52	-	1	1	1	1	2	0	-	0	-	1	1	-	-	-
53	-	0	0	-	1	1	1	-	1	-	1	1	-	-	-
54	-	0	0	-	2	2	-	-	-	-	-	-	-	-	-
55	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
56	-	1	1	-	0	0	-	-	-	-	-	-	-	-	-
57	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-
58	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-
59	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-
60	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
61	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	392	182	574	251	95	405	178	64	242	138	93	231	36	16	52

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	8			9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	0	-	-	-
9	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-
10	-	-	-	-	-	6	-	-	3	-	-	7	-	-	-
11	-	-	-	-	-	22	-	-	10	-	-	11	-	-	-
12	-	-	-	-	-	22	-	-	14	-	-	15	-	-	-
13	-	-	-	-	-	16	-	-	3	-	-	19	-	-	-
14	-	-	-	-	-	7	-	-	2	-	-	6	-	-	-
15	-	-	-	-	-	0	-	-	0	-	-	2	-	-	-
16	-	-	-	-	-	0	-	-	0	-	-	0	-	-	-
17	-	-	-	-	-	0	-	-	0	-	-	0	-	-	-
18	-	-	-	-	-	0	-	1	1	-	-	0	-	-	-
19	-	-	-	-	-	1	2	2	4	-	-	0	-	-	-
20	-	-	-	-	-	0	1	3	4			0			
21	-	-	-	1	-	1	1	4	5	6	3	9	-	-	-
22	-	-	-	0	-	0	1	3	4	10	7	17	-	-	-
23	-	-	-	0	1	1	6	3	9	16	11	27	-	-	-
24	-	-	-	3	2	5	11	2	13	22	21	43	-	-	-
25	-	-	-	1	2	3	6	3	9	16	6	22	-	1	1
26	-	-	-	2	0	2	6	1	7	19	14	33	-	0	0
27	-	-	-	0	0	0	4	1	5	8	9	17	-	0	0
28	-	-	-	0	0	0	2	2	4	8	4	12	-	0	0
29	-	-	-	1	0	1	2	0	2	4	1	5	-	0	0
30	-	-	-	0	0	0	0	0	0	0	2	2	-	0	0
31	-	-	-	0	0	0	0	0	0	1	0	1	-	0	0
32	-	-	-	0	0	0	1	1	2	3	0	3	-	0	0
33	-	-	-	0	0	0	1	0	1	0	1	1	-	0	0
34	-	-	-	1	0	1	2	0	2	2	5	7	-	0	0
35	-	-	-	0	0	0	2	0	2	4	1	5	-	0	0
36	-	-	-	1	0	1	3	0	3	3	1	4	-	0	0
37	-	-	-	0	0	0	3	0	3	2	1	3	-	0	0
38	5	-	5	0	2	2	2	1	3	3	0	3	1	0	1
39	3	2	5	4	3	7	1	1	2	5	5	10	0	0	0
40	8	6	14	5	2	7	3	1	4	3	5	8	3	1	4
41	10	3	13	4	1	5	11	1	12	5	4	9	2	1	3
42	11	5	16	12	2	14	10	1	11	12	1	13	3	4	7
43	26	4	30	10	5	15	16	0	16	13	8	21	9	1	10
44	32	17	49	13	6	19	11	4	15	24	14	38	27	10	37
45	20	15	35	22	6	28	20	11	31	17	25	42	19	14	33
46	7	21	28	24	7	31	21	6	27	14	16	30	12	14	26
47	9	11	20	6	8	14	8	8	16	12	29	41	20	29	49
48	1	13	14	8	7	15	6	6	12	7	19	26	10	27	37
49	1	9	10	3	8	11	2	2	4	5	14	19	4	22	26

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	8			9			10			11			12		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	-	6	6	0	5	5	3	1	4	3	5	8	6	23	29
51	-	2	2	0	0	0	5	2	7	0	5	5	1	10	11
52	-	1	1	1	2	3	0	0	0	2	1	3	2	8	10
53	-	1	1	-	0	0	0	0	0	1	1	2	0	4	4
54	-	0	0	-	0	0	0	0	0	-	1	1	1	7	8
55	-	1	1	-	1	1	0	0	0	-	1	1	-	1	1
56	-	-	-	-	-	-	1	1	2	-	0	0	-	0	0
57	-	-	-	-	-	-	-	0	0	-	2	2	-	1	1
58	-	-	-	-	-	-	-	0	0	-	0	0	-	0	0
59	-	-	-	-	-	-	-	1	1	-	1	1	-	0	0
60	-	-	-	-	-	-	-	-	-	-	0	0	-	1	1
61	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
62	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
63	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
64	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
65	-	-	-	-	-	-	-	-	-	-	0	0	-	1	1
66	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
67	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
68	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
69	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
70	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	133	117	250	122	70	269	174	73	279	250	245	557	120	180	300

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	13			14			15			16			17		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	–	–	5	–	–	1	–	–	6	–	–	1	–	–	–
10	–	–	18	–	–	3	–	–	33	–	–	6	–	–	2
11	–	–	50	–	–	8	–	–	71	–	–	13	–	–	3
12	–	–	81	–	–	9	–	–	74	–	–	15	–	–	2
13	–	–	55	–	–	9	–	–	53	–	–	10	–	–	2
14	–	–	28	–	–	0	–	–	20	–	–	6	–	–	2
15	–	–	5	–	–	0	–	–	0	–	–	3	–	–	0
16	–	–	2	–	–	0	–	–	1	–	–	0	–	–	0
17	–	–	2	–	–	0	–	–	0	–	–	0	–	–	0
18	–	–	0	–	–	0	–	–	1	–	–	0	–	–	0
19	–	–	0	–	–	0	–	–	0	–	–	0	–	–	0
20	1	1	2	–	1	1	–	–	0	–	–	0	–	–	0
21	0	1	1	1	0	1	–	1	1	1	1	2	–	–	0
22	0	1	1	1	0	1	2	1	3	1	2	3	–	–	0
23	2	3	5	1	2	3	4	4	8	2	3	5	–	1	1
24	4	4	8	1	1	2	1	3	4	8	3	11	2	0	2
25	3	1	4	2	1	3	4	1	5	3	4	7	1	1	2
26	0	0	0	4	2	6	4	1	5	2	3	5	2	1	3
27	0	0	0	3	2	5	4	4	8	5	1	6	2	1	3
28	1	0	1	0	3	3	1	1	2	1	0	1	0	0	0
29	0	0	0	1	0	1	0	2	2	0	0	0	0	0	0
30	0	0	0	1	2	3	1	0	1	0	0	0	0	0	0
31	0	0	0	1	1	2	0	0	0	0	0	0	0	1	1
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	1	1	1	0	1	1	0	1
39	0	0	0	2	0	2	0	0	0	1	1	2	8	3	11
40	0	0	0	4	2	6	0	0	0	1	0	1	11	3	14
41	0	0	0	1	2	3	0	0	0	1	0	1	11	4	15
42	0	0	0	2	0	2	0	0	0	3	0	3	21	8	29
43	1	0	1	6	4	10	0	0	0	7	1	8	18	8	26
44	1	2	3	16	4	20	3	8	11	4	3	7	24	6	30
45	1	3	4	21	8	29	1	1	2	10	4	14	14	12	26
46	0	0	0	17	13	30	1	6	7	5	2	7	20	12	32
47	1	4	5	5	6	11	–	3	3	3	7	10	9	11	20
48	2	1	3	1	11	12	–	3	3	1	2	3	3	7	10
49	–	2	2	3	5	8	–	2	2	0	1	1	1	6	7

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	13			14			15			16			17		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	–	1	1	1	7	8	–	4	4	1	2	3	1	3	4
51	–	3	3	–	3	3	–	5	5	–	0	0	1	0	1
52	–	1	1	–	5	5	–	1	1	–	0	0	–	1	1
53	–	–	–	–	0	0	–	0	0	–	0	0	–	–	–
54	–	–	–	–	0	0	–	0	0	–	0	0	–	–	–
55	–	–	–	–	0	0	–	1	1	–	0	0	–	–	–
56	–	–	–	–	0	0	–	–	–	–	0	0	–	–	–
57	–	–	–	–	1	1	–	–	–	–	0	0	–	–	–
58	–	–	–	–	1	1	–	–	–	–	0	0	–	–	–
59	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
60	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
61	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
62	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
63	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–
64	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
66	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
67	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
69	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
70	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
71	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
72	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
73	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
74	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
75	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	17	28	291	96	87	213	26	53	338	61	42	157	150	90	251

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	18			20			21			22			23		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	–	–	1	–	–	–	–	–	2	–	–	2	–	–	–
10	–	–	22	–	–	–	–	–	15	–	–	10	–	–	1
11	–	–	55	–	–	–	–	–	20	–	–	14	–	–	4
12	–	–	70	–	–	1	–	–	44	–	–	17	–	–	5
13	–	–	69	–	–	3	–	–	40	–	–	18	–	–	9
14	–	–	23	–	–	0	–	–	23	–	–	2	–	–	9
15	–	–	13	–	–	0	–	–	6	–	–	2	–	–	1
16	–	–	0	–	–	0	–	–	4	–	–	0	–	–	0
17	–	–	0	–	–	0	–	–	0	–	–	0	–	–	1
18	–	–	0	–	–	0	–	–	0	–	–	0	–	–	0
19	2	1	3	–	–	0	–	–	0	–	–	0	–	–	0
20	1	4	5	–	–	0	–	1	1	–	–	0	–	–	0
21	5	8	13	–	–	0	5	2	7	–	–	0	1	–	1
22	4	8	12	–	–	0	2	8	10	–	–	0	2	–	2
23	11	18	29	–	–	0	7	13	20	–	2	2	2	1	3
24	23	14	37	–	–	0	14	8	22	–	0	0	2	0	2
25	30	16	46	–	–	0	18	17	35	–	0	0	3	2	5
26	20	14	34	–	–	0	18	16	34	–	0	0	0	2	2
27	22	11	33	–	–	0	11	7	18	1	0	1	1	1	2
28	11	3	14	–	–	0	3	7	10	0	0	0	1	0	1
29	4	2	6	–	–	0	5	1	6	0	0	0	0	1	1
30	4	1	5	–	–	0	0	1	1	0	0	0	0	0	0
31	0	0	0	–	–	0	0	2	2	0	0	0	1	0	1
32	1	1	2	–	–	0	0	0	0	0	0	0	0	0	0
33	2	1	3	–	–	0	0	1	1	0	0	0	0	0	0
34	1	1	2	–	–	0	0	0	0	0	0	0	0	0	0
35	1	2	3	1	1	2	0	2	2	0	0	0	1	0	1
36	1	1	2	1	2	3	1	0	1	0	0	0	0	0	0
37	3	0	3	1	2	3	2	0	2	0	0	0	0	0	0
38	4	2	6	7	5	12	0	0	0	0	0	0	0	0	0
39	3	4	7	14	7	21	7	0	7	1	0	1	0	0	0
40	2	7	9	14	10	24	3	2	5	0	0	0	0	1	1
41	5	11	16	16	10	26	7	3	10	1	0	1	0	1	1
42	5	6	11	21	8	29	17	6	23	1	2	3	1	0	1
43	6	11	17	20	14	34	13	7	20	0	0	0	0	0	0
44	4	14	18	29	14	43	20	9	29	1	2	3	0	1	1
45	6	15	21	17	20	37	13	14	27	2	2	4	3	0	3
46	2	9	11	5	16	21	8	7	15	0	3	3	2	0	2
47	2	15	17	6	8	14	2	9	11	0	3	3	–	1	1
48	4	4	8	4	9	13	1	6	7	0	0	0	–	1	1
49	–	6	6	–	1	1	0	4	4	0	1	1	–	0	0

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	18			20			21			22			23		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	-	3	3	-	3	3	0	2	2	1	-	1	-	2	2
51	-	0	0	-	0	0	1	1	2	-	-	-	-	-	-
52	-	1	1	-	1	1	-	0	0	-	-	-	-	-	-
53	-	1	1	-	0	0	-	1	1	-	-	-	-	-	-
54	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
55	-	1	1	-	0	0	-	-	-	-	-	-	-	-	-
56	-	1	1	-	1	1	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	189	217	659	156	132	292	178	157	489	8	15	88	20	14	64

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	25			26			27			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
10	–	–	–	–	–	3	–	–	–	–	–	1	–	–	2
11	–	–	–	–	–	3	–	–	–	–	–	4	–	–	10
12	–	–	–	–	–	5	–	–	–	–	–	3	–	–	12
13	–	–	–	–	–	3	–	–	–	–	–	1	–	–	14
14	–	–	–	–	–	2	1	1	2	–	–	0	–	–	10
15	–	–	–	–	–	2	0	0	0	–	–	0	–	–	1
16	–	–	–	–	–	0	0	0	0	–	–	0	–	–	1
17	–	–	–	–	–	0	0	0	0	–	–	0	–	–	0
18	–	–	–	–	–	0	0	0	0	–	–	0	–	–	0
19	–	–	–	–	–	0	0	0	0	–	–	0	1	–	1
20	–	–	–	1	–	1	0	0	0	–	1	1	0	–	0
21	–	–	–	0	2	2	0	0	0	–	0	0	0	–	0
22	–	–	–	1	2	3	0	0	0	–	1	1	0	–	0
23	–	–	–	2	1	3	2	0	2	–	1	1	0	–	0
24	–	–	–	2	3	5	0	0	0	3	0	3	0	–	0
25	–	–	–	2	1	3	0	0	0	1	1	2	0	–	0
26	–	–	–	2	1	3	1	0	1	1	1	2	0	–	0
27	–	–	–	0	0	0	2	0	2	0	2	2	0	–	0
28	–	–	–	0	0	0	0	0	0	1	0	1	0	–	0
29	–	–	–	0	0	0	0	1	1	0	1	1	0	–	0
30	–	–	–	0	0	0	1	0	1	0	0	0	0	1	1
31	–	–	–	0	1	1	0	0	0	0	1	1	0	0	0
32	–	–	–	0	0	0	2	1	3	0	0	0	0	0	0
33	–	1	1	2	1	3	1	1	2	2	0	2	0	0	0
34	–	2	3	2	0	2	2	2	4	0	0	0	1	0	1
35	1	3	7	0	0	0	2	1	3	0	0	0	2	0	2
36	4	3	10	2	0	2	2	2	4	2	3	5	1	0	1
37	7	2	9	3	1	4	3	2	5	1	1	2	6	0	6
38	7	12	23	6	4	10	3	3	6	3	3	6	5	1	6
39	11	15	23	6	5	11	4	2	6	1	1	2	3	8	11
40	8	17	25	19	10	29	7	0	7	2	2	4	5	8	13
41	8	13	29	19	6	25	10	6	16	1	0	1	4	4	8
42	16	27	40	14	18	32	10	1	11	2	2	4	10	6	16
43	13	13	24	13	17	30	10	8	18	2	1	3	11	6	17
44	11	18	27	9	15	24	5	8	13	0	3	3	15	10	25
45	9	17	22	7	5	12	7	5	12	1	2	3	9	8	17
46	5	11	13	2	7	9	2	6	8	–	1	1	4	11	15
47	2	6	8	1	6	7	1	4	5	–	0	0	1	5	6
48	2	7	8	2	1	3	0	1	1	–	1	1	1	1	2
49	1														

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	25			26			27			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	–	5	5	–	2	2	1	2	3	–	–	–	2	1	3
51	–	–	–	–	0	0	–	–	–	–	–	–	–	2	2
52	–	–	–	–	1	1	–	–	–	–	–	–	–	0	0
53	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
54	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
55	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
56	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
57	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
58	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
59	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
62	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
63	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
64	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
66	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
67	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
69	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
70	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
71	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
72	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
73	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
74	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
75	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	105	172	277	117	110	246	79	57	136	23	29	61	81	73	204

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	31			32			33			34			35		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–
9	–	–	3	–	–	–	–	–	–	–	–	2	–	–	–
10	–	–	10	–	–	–	–	–	–	–	–	2	–	–	–
11	–	–	51	–	–	–	–	–	–	–	–	19	–	–	–
12	–	–	58	–	–	–	–	–	–	–	–	38	–	–	–
13	–	–	50	–	–	–	–	–	–	–	–	40	–	–	–
14	–	–	24	–	–	–	–	–	–	–	–	45	–	–	–
15	–	–	7	–	–	–	–	–	–	–	–	19	–	–	–
16	–	–	0	–	–	–	–	–	–	–	–	6	–	–	–
17	–	–	0	–	–	–	–	–	–	–	–	0	–	–	–
18	–	–	0	–	–	–	–	–	–	–	–	0	–	–	–
19	–	–	0	–	–	–	–	–	–	–	–	0	–	–	–
20	–	–	0	–	–	–	–	–	–	–	–	3	–	–	–
21	–	–	0	–	–	–	–	–	–	–	–	5	–	–	–
22	1	–	1	–	–	–	–	–	–	–	–	8	–	–	–
23	0	1	1	–	–	–	–	–	–	–	–	13	–	–	–
24	0	0	0	–	–	–	–	–	–	–	–	22	–	–	–
25	1	0	1	–	–	–	–	–	–	–	–	24	–	–	–
26	0	0	0	–	–	–	–	–	–	–	–	20	–	–	–
27	0	0	0	–	–	–	–	–	–	–	–	16	–	–	–
28	0	0	0	–	–	–	–	–	–	–	–	14	–	–	–
29	0	0	0	–	–	–	–	–	–	–	–	4	–	–	–
30	0	0	0	–	–	–	–	–	–	–	–	4	–	–	–
31	0	0	0	–	–	–	–	–	–	–	–	1	–	–	–
32	0	0	0	–	–	–	–	–	–	–	–	0	–	–	–
33	0	1	1	–	–	–	–	–	–	–	–	1	–	–	–
34	0	0	0	–	–	–	–	–	–	1	–	1	–	–	–
35	0	0	0	–	–	–	–	–	–	4	–	4	–	–	–
36	0	0	0	–	–	–	–	–	–	3	–	3	2	–	2
37	0	0	0	–	–	–	–	–	–	6	3	9	7	–	7
38	0	0	0	–	1	1	1	–	1	3	1	4	5	1	6
39	0	0	0	2	0	2	3	1	4	4	2	6	12	5	17
40	2	0	2	3	0	3	4	2	6	4	1	5	14	10	24
41	1	0	1	3	1	4	7	6	13	7	8	15	20	17	37
42	2	0	2	18	1	19	16	11	27	10	1	11	30	22	52
43	4	1	5	30	10	40	19	18	37	7	9	16	36	33	69
44	6	3	9	40	20	60	18	15	33	9	11	20	29	57	86
45	6	9	15	39	19	58	21	31	52	3	3	6	23	54	77
46	6	6	12	21	42	63	12	25	37	6	8	14	25	49	74
47	1	11	12	18	30	48	4	20	24	1	3	4	8	32	40
48	1	3	4	6	19	25	2	6	8	–	5	5	3	14	17
49	–	3	3	5	14	19	2	6	8	–	4	4	1	10	11

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	31			32			33			34			35		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	–	0	0	1	9	10	1	6	7	–	0	0	0	4	4
51	–	1	1	–	4	4	–	1	1	–	2	2	2	1	3
52	–	1	1	–	3	3	–	–	–	–	–	–	–	1	1
53	–	3	3	–	1	1	–	–	–	–	–	–	–	1	1
54	–	–	–	–	0	0	–	–	–	–	–	–	–	–	–
55	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–
56	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
57	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
58	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
59	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
60	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
62	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
63	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
64	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
66	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
67	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
69	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
70	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
71	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
72	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
73	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
74	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
75	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	31	43	277	186	175	361	110	148	258	68	61	436	217	311	528

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	36			37			38			39			40		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	–	–	–	–	–	3	–	–	–	–	–	1	–	–	15
11	–	–	–	–	–	3	–	–	–	–	–	3	–	–	33
12	–	–	1	–	–	17	–	–	–	–	–	4	–	–	50
13	–	–	4	–	–	6	–	–	–	–	–	6	–	–	37
14	–	–	1	–	–	6	–	–	–	–	–	5	–	–	22
15	–	–	2	–	–	2	–	–	–	–	–	1	–	–	4
16	–	–	0	–	–	1	–	–	–	–	–	0	–	–	2
17	–	–	0	–	–	0	–	–	–	–	–	0	–	–	0
18	–	–	0	–	–	0	–	–	–	–	–	0	–	–	0
19	1	3	4	–	–	1	–	–	–	–	–	0	–	–	1
20	2	0	2	–	–	0	–	–	–	–	–	0	–	–	1
21	4	1	5	–	–	0	–	–	–	–	–	2	–	–	0
22	9	4	13	2	–	2	–	–	–	–	–	3	–	–	3
23	8	12	20	0	1	1	–	–	–	–	–	4	–	–	6
24	4	9	13	1	1	2	–	–	–	–	–	1	–	–	4
25	4	5	9	0	3	3	–	–	–	–	–	4	–	–	7
26	3	7	10	1	1	2	–	–	–	–	–	2	–	–	8
27	8	2	10	2	0	2	–	–	–	–	–	0	–	–	3
28	0	1	1	0	0	0	–	–	–	–	–	0	–	–	1
29	0	0	0	0	0	0	–	–	–	–	–	0	–	–	1
30	0	0	0	0	0	0	–	–	–	–	–	0	–	–	1
31	1	1	2	0	0	0	–	–	–	–	–	0	–	–	0
32	2	0	2	0	0	0	–	1	1	–	–	0	–	–	0
33	0	2	2	1	0	1	–	2	2	–	–	1	–	–	0
34	0	1	1	1	0	1	1	2	3	–	–	0	–	–	0
35	3	0	3	1	1	2	1	2	3	–	–	0	–	–	0
36	2	1	3	2	1	3	6	3	9	–	–	0	–	–	0
37	3	4	7	1	0	1	5	3	8	–	–	0	–	–	0
38	2	3	5	0	2	2	6	6	12	–	–	0	–	–	0
39	5	3	8	4	0	4	15	8	23	–	–	1	1	–	1
40	1	1	2	2	1	3	13	15	28	–	–	0	1	–	1
41	4	5	9	6	1	7	19	6	25	–	–	0	1	–	1
42	10	4	14	6	6	12	34	21	55	–	–	0	1	–	1
43	13	9	22	5	2	7	34	15	49	–	–	1	1	–	1
44	7	20	27	6	2	8	35	12	47	–	–	4	1	1	2
45	3	8	11	1	7	8	44	27	71	–	–	2	1	2	3
46	0	8	8	2	4	6	19	35	54	–	–	2	1	0	1
47	1	4	5	4	4	8	19	29	48	–	–	1	0	2	2
48	0	3	3	0	1	1	11	19	30	–	–	1	1	1	2
49	1	2	3	1	0	1	4	18	22	–	–	1	–	–	–

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	36			37			38			39			40		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	1	1	2	1	1	2	3	7	10	-	-	0	-	-	-
51	-	1	1	-	0	0	2	6	8	-	-	1	-	-	-
52	-	0	0	-	1	1	-	3	3	-	-	-	-	-	-
53	-	1	1	-	-	-	-	3	3	-	-	-	-	-	-
54	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
55	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
56	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
57	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
58	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
59	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
60	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
61	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
62	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
63	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
64	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
65	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
66	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	102	126	236	50	40	129	271	244	515	-	-	51	9	6	217

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	41			42			43			44			45		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–
10	–	–	2	–	–	1	–	–	–	–	–	2	–	–	–
11	–	–	20	–	–	5	–	–	3	–	–	7	–	–	–
12	–	–	56	–	–	4	–	–	0	–	–	20	–	–	–
13	–	–	50	–	–	0	–	–	0	–	–	23	–	–	–
14	–	–	41	–	–	3	–	–	2	–	–	28	–	–	–
15	–	–	14	–	–	0	–	–	1	–	–	19	–	–	–
16	–	–	12	–	–	1	–	–	1	–	–	5	–	–	–
17	–	–	0	–	–	0	–	–	0	–	–	0	–	–	–
18	–	–	0	–	–	0	–	–	0	–	–	0	–	–	–
19	–	–	0	–	–	1	–	–	0	–	–	0	–	–	–
20	–	–	2	–	–	0	–	–	0	–	1	1	–	–	–
21	–	–	2	–	–	0	1	1	2	2	1	3	–	–	–
22	–	–	4	–	–	0	1	0	1	2	1	3	–	–	–
23	–	–	7	–	–	2	4	0	4	1	0	1	–	–	–
24	–	–	19	–	–	2	4	0	4	3	7	10	–	–	–
25	–	–	19	–	–	5	3	3	6	4	0	4	–	–	–
26	–	–	22	–	–	7	0	2	2	5	2	7	–	–	–
27	–	–	12	–	–	5	0	1	1	2	0	2	–	–	–
28	–	–	12	–	–	5	2	0	2	3	0	3	–	–	–
29	–	–	5	–	–	2	0	0	0	0	0	0	–	–	–
30	–	–	4	–	–	4	0	0	0	1	0	1	–	–	–
31	–	–	0	–	–	0	0	0	0	0	0	0	–	–	–
32	–	1	1	–	–	0	0	0	0	0	0	0	–	–	–
33	1	1	2	1	–	1	0	0	0	0	0	0	–	–	–
34	1	2	3	2	–	2	0	0	0	2	0	2	–	–	–
35	3	2	5	0	1	1	0	0	0	0	0	0	–	–	–
36	4	1	5	2	1	3	1	0	1	0	0	0	–	–	–
37	11	3	14	5	3	8	1	1	2	1	0	1	–	–	–
38	7	12	19	9	4	13	2	0	2	1	1	2	–	–	–
39	18	13	31	14	2	16	1	1	2	2	2	4	–	–	–
40	24	12	36	8	10	18	5	0	5	1	1	2	–	–	–
41	11	18	29	14	2	16	1	0	1	1	3	4	–	–	–
42	15	18	33	14	8	22	2	1	3	4	2	6	–	–	–
43	10	20	30	19	13	32	10	1	11	7	3	10	–	–	–
44	10	16	26	26	16	42	15	3	18	0	5	5	–	–	–
45	6	14	20	17	13	30	10	8	18	1	5	6	–	–	–
46	5	14	19	15	13	28	7	4	11	0	10	10	–	–	–
47	2	7	9	8	9	17	6	5	11	2	5	7	–	–	1
48	4	6	10	5	5	10	4	6	10	–	4	4	–	–	–
49	–	3	3	3	4	7	–	4	4	–	1	1	–	–	–

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	41			42			43			44			45		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	-	2	2	1	5	6	-	0	0	-	1	1	-	-	-
51	-	1	1	1	1	2	-	1	1	-	0	0	-	-	-
52	-	2	2	-	1	1	-	1	1	-	1	1	-	-	-
53	-	1	1	-	3	3	-	1	1	-	-	-	-	-	-
54	-	1	1	-	-	-	-	0	0	-	-	-	-	-	-
55	-	0	0	-	-	-	-	1	1	-	-	-	-	-	-
56	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
57	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
58	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
59	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
60	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
61	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
62	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
63	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
64	-	1	1		-	-	-	-	-	-	-	-	-	-	-
65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	132	173	610	164	114	325	80	45	132	45	56	205	-	-	1

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	46			47			48			49			50		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
9	–	–	–	–	–	–	–	–	4	–	–	–	–	–	2
10	–	–	–	–	–	–	–	–	12	–	–	–	–	–	20
11	–	–	3	–	–	–	–	–	53	–	–	–	–	–	58
12	–	–	2	–	–	–	–	–	92	–	–	–	–	–	83
13	–	–	0	–	–	–	–	–	92	–	–	–	–	–	108
14	–	–	1	–	–	–	–	–	51	–	–	–	–	–	53
15	–	–	0	–	–	–	–	–	11	–	–	–	–	–	26
16	–	–	0	–	–	–	–	–	2	–	–	–	–	–	1
17	–	–	0	–	–	–	–	–	0	–	–	–	–	–	19
18	–	–	0	–	–	–	–	–	0	–	–	–	–	–	1
19	–	–	1	–	–	–	–	–	0	–	–	–	1	–	3
20	–	–	0	–	–	–	–	–	1	–	–	–	2	–	9
21	–	–	0	–	–	–	1	1	4	–	–	–	3	1	11
22	–	–	1	–	–	–	1	3	7	–	–	–	7	2	24
23	–	–	4	–	–	–	6	3	14	–	–	–	10	7	65
24	2	1	5	–	–	–	13	3	24	–	–	–	16	11	78
25	0	3	7	–	–	–	4	5	16	–	–	–	22	21	84
26	2	3	2	–	–	–	6	3	18	–	–	–	21	20	83
27	0	0	2	–	–	–	4	3	13	–	–	–	10	12	45
28	0	0	3	–	–	–	7	4	15	–	–	–	11	10	30
29	0	1	2	–	–	–	0	2	7	–	–	–	3	1	12
30	1	2	2	–	–	–	3	1	4	–	–	–	3	3	7
31	0	2	0	–	–	–	1	0	1	–	–	–	3	0	3
32	0	0	1	–	–	–	2	1	3	–	–	–	1	2	3
33	1	0	1	–	–	–	0	1	1	–	–	–	1	0	1
34	1	0	0	–	–	–	1	4	5	–	–	–	2	2	4
35	0	0	1	–	–	–	1	1	2	–	–	–	2	4	6
36	0	1	4	–	–	–	1	0	1	–	–	–	0	3	3
37	2	2	7	–	–	–	2	3	5	–	–	–	2	5	7
38	1	6	2	–	–	–	1	1	2	–	–	–	1	4	5
39	0	2	5	–	–	–	1	0	1	–	–	–	2	3	5
40	2	3	6	–	–	–	4	2	6	–	–	–	0	1	1
41	1	5	8	1	–	1	–	0	0	2	1	3	1	2	3
42	3	5	9	1	2	3	–	0	0	1	1	2	1	0	1
43	4	5	14	0	2	2	–	0	0	2	5	7	6	3	9
44	5	9	11	1	0	1	–	0	0	3	0	3	3	3	6
45	3	8	15	–	1	1	–	0	0	2	7	9	0	2	2
46	4	11	18	–	0	0	–	0	0	0	3	3	0	3	3
47	1	17	17	–	2	2	–	0	0	2	3	5	1	2	3
48	1	16	9	–	1	1	–	0	0	1	5	6	–	3	3
49	2	7	4	–	0	0	–	1	1	–	7	7	–	4	4

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number														
	46			47			48			49			50		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
50	1	12	13	-	2	2	-	-	-	-	3	3	-	0	0
51	-	5	5	-	0	0	-	-	-	-	2	2	-	0	0
52	-	4	4	-	1	1	-	-	-	-	3	3	-	0	0
53	-	3	3	-	-	-	-	-	-	-	0	0	-	0	0
54	-	2	2	-	-	-	-	-	-	-	2	2	-	1	1
55	-	1	1	-	-	-	-	-	-	-	-	-	-	0	0
56	-	1	1	-	-	-	-	-	-	-	-	-	-	0	0
57	-	1	1	-	-	-	-	-	-	-	-	-	-	1	1
58	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
59	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
60	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
61	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
62	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
63	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
64	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
65	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
66	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
67	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	37	142	198	3	11	14	59	42	468	13	42	55	135	136	896

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number								
	51			52			Total		
	M	F	T	M	F	T	M	F	T
7	–	–	–	–	–	–	–	–	1
8	–	–	–	–	–	–	–	–	1
9	–	–	–	–	–	–	–	–	42
10	–	–	–	–	–	10	–	–	227
11	–	–	–	–	–	14	–	–	594
12	–	–	–	–	–	18	–	–	856
13	–	–	–	–	–	17	–	–	774
14	–	–	–	–	–	7	1	1	423
15	–	–	–	–	–	1	1	0	130
16	–	–	–	–	–	0	0	0	34
17	–	–	–	–	–	0	0	0	22
18	–	–	–	–	–	0	0	1	3
19	–	–	–	–	–	0	6	7	19
20	–	–	–	–	–	0	9	11	35
21	–	–	–	–	–	1	35	26	80
22	–	–	–	–	–	2	51	47	136
23	–	–	–	–	–	6	87	93	272
24	–	–	–	–	–	6	148	98	360
25	–	–	–	–	–	6	138	103	356
26	–	–	–	–	–	3	128	97	340
27	–	–	–	–	–	2	94	60	223
28	–	–	–	–	–	0	58	40	145
29	–	–	–	–	–	0	21	13	61
30	–	–	–	–	–	0	14	14	42
31	–	–	–	–	–	0	12	8	21
32	–	–	–	–	–	0	10	9	19
33	–	–	–	–	–	0	13	12	27
34	–	–	–	–	–	0	25	25	50
35	–	–	–	–	1	1	40	24	64
36	1	–	1	–	0	0	53	26	79
37	0	1	1	–	0	0	96	55	151
38	0	2	2	–	0	0	112	75	187
39	1	1	2	–	0	0	205	109	315
40	0	4	4	–	0	0	221	159	380
41	4	4	8	3	0	3	281	175	456
42	12	5	17	2	0	2	457	207	664
43	16	18	34	1	0	1	56	308	877
44	15	27	42	3	2	5	646	441	1091
45	11	35	46	1	0	1	537	510	1049
46	8	45	53	2	0	2	388	502	892
47	9	36	45	0	0	0	227	448	677
48	2	21	23	1	0	1	116	298	415
49	1	15	16	–	0	0	50	209	260

Appendix Table 9 (cont'd)

Fork Length (cm)	Set Number								
	51			52			Total		
	M	F	T	M	F	T	M	F	T
50	1	9	10	-	2	2	32	150	182
51	-	4	4	-	-	-	16	68	85
52	-	0	0	-	-	-	6	48	54
53	-	0	0	-	-	-	2	28	30
54	-	0	0	-	-	-	1	16	17
55	-	0	0	-	-	-	0	9	9
56	-	1	1	-	-	-	1	8	9
57	-	-	-	-	-	-	-	6	6
58	-	-	-	-	-	-	-	2	2
59	-	-	-	-	-	-	-	2	2
60	-	-	-	-	-	-	-	2	2
61	-	-	-	-	-	-	-	2	2
62	-	-	-	-	-	-	-	0	0
63	-	-	-	-	-	-	-	1	1
64	-	-	-	-	-	-	-	1	1
65	-	-	-	-	-	-	-	2	2
66	-	-	-	-	-	-	-	1	1
67	-	-	-	-	-	-	-	1	1
68	-	-	-	-	-	-	-	0	0
69	-	-	-	-	-	-	-	0	0
70	-	-	-	-	-	-	-	1	1
Total	81	228	309	13	5	111	4906	4559	13257[a]

[a]Total includes unsexed fish.

Appendix Table 10. Length frequency of walleye pollock. G.B. REED, May 25-June 18, 1976.

Fork length (cm)	Set number														
	1			2			3			4			6		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
31	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
32	–	–	–	–	1	1	–	–	–	1	–	1	–	–	–
33	–	–	–	1	0	1	–	–	–	0	–	0	–	–	–
34	–	–	–	6	0	6	–	–	–	1	–	1	–	–	–
35	–	–	–	9	2	11	–	–	–	3	2	5	–	–	–
36	–	–	–	17	0	17	–	–	–	8	2	10	–	–	–
37	–	–	–	24	5	29	2	–	2	9	2	11	–	–	–
38	2	–	2	16	6	22	0	–	0	14	9	23	–	–	–
39	0	–	0	13	8	21	0	–	0	18	13	31	–	–	–
40	2	1	3	3	11	14	0	–	0	15	9	24	–	–	–
41	0	1	1	3	4	7	1	–	1	9	10	19	1	–	1
42	0	1	1	2	1	3	0	–	0	11	8	19	0	–	0
43	0	1	1	6	3	9	0	–	0	16	9	25	1	–	1
44	0	1	1	0	5	5	0	–	0	5	6	11	–	–	0
45	0	2	2	1	2	3	1	–	1	5	8	13	–	–	0
46	1	0	1	–	0	0	0	1	1	1	9	10	–	–	0
47	–	0	0	–	2	2	1	–	1	1	8	9	–	2	2
48	–	1	1	–	1	1	–	–	–	–	8	8	–	–	–
49	–	0	0	–	1	1	–	–	–	–	0	0	–	–	–
50	–	0	0	–	–	–	–	–	–	–	4	4	–	–	–
51	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
52	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
53	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	5	9	14	101	52	153	5	1	6	117	107	224	2	2	4

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	7			8			9			12			13		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
33	-	-	-	0	-	0	-	-	-	-	1	1	-	-	-
34	-	-	-	0	2	2	-	-	-	-	0	0	-	-	-
35	-	-	-	9	0	9	-	-	-	-	0	0	-	-	-
36	-	-	-	11	2	13	-	-	-	-	0	0	-	-	-
37	-	-	-	9	4	13	-	-	-	1	2	3	-	-	-
38	-	-	-	14	5	19	-	-	-	4	3	7	1	2	3
39	-	-	-	18	12	30	1	-	1	5	3	8	0	0	0
40	1	-	1	16	17	33	1	1	2	0	5	5	1	2	3
41	-	-	-	9	8	17	1	1	2	7	4	11	2	1	3
42	-	-	-	10	11	21	1	0	1	3	9	12	0	2	2
43	-	-	-	10	7	17	0	0	0	4	5	9	1	0	1
44	-	-	-	5	23	28	1	1	2	8	5	13	-	3	3
45	-	-	-	4	15	19	1	1	2	5	4	9	-	0	0
46	-	-	-	1	12	13	-	1	1	1	9	10	-	0	0
47	-	-	-	1	15	16	-	0	0	1	6	7	-	0	0
48	-	-	-	1	4	5	-	1	1	0	3	3	-	1	1
49	-	-	-	1	4	5	-	1	1	0	3	3	-	-	-
50	-	-	-	-	0	0	-	-	-	0	1	1	-	-	-
51	-	-	-	-	1	1	-	-	-	0	-	0	-	-	-
52	-	-	-	-	-	-	-	-	-	0	-	0	-	-	-
53	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	-	1	120	142	262	6	7	13	40	63	103	5	11	16

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	14			16			17			18			19		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–
31	–	1	1	–	–	–	–	–	–	0	–	0	2	–	3
32	–	0	0	–	–	–	–	–	–	0	–	0	1	–	6
33	–	1	1	–	–	–	1	–	1	1	1	2	5	–	9
34	–	0	0	–	–	–	2	–	2	0	0	0	4	1	11
35	–	0	0	–	–	–	1	–	1	0	0	0	14	4	34
36	–	0	0	–	–	–	5	–	5	0	0	0	29	3	54
37	–	0	0	–	–	–	5	2	7	1	1	2	17	11	58
38	–	0	0	–	1	1	3	5	8	0	0	0	22	9	68
39	1	0	1	–	1	1	3	5	8	0	0	0	16	9	54
40	0	0	0	–	1	1	2	4	6	1	3	4	9	7	30
41	1	1	2	1	0	1	1	0	1	–	–	–	5	5	24
42	2	0	2	1	0	1	1	0	1	–	–	–	7	3	20
43	1	0	1	–	0	0	3	0	3	–	–	–	5	6	16
44	2	2	4	–	0	0	2	1	3	–	–	–	2	3	8
45	0	0	0	–	1	1	–	1	1	–	–	–	–	1	3
46	0	1	1	–	–	–	–	–	–	–	–	–	–	1	2
47	1	1	2	–	–	–	–	–	–	–	–	–	–	1	1
48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
49	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
51	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
52	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
53	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	8	7	15	2	4	6	29	18	47	4	5	9	138	64	401

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	20			21			22			23			24		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
31	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0
32	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0
33	1	–	1	–	–	–	–	–	–	–	–	–	–	0	0
34	1	–	1	1	–	1	–	–	–	–	–	–	–	0	0
35	3	–	3	0	–	0	2	1	3	–	–	–	–	0	0
36	3	–	3	1	–	1	4	2	6	–	–	–	–	1	1
37	3	2	5	0	1	1	3	2	5	–	–	–	3	0	3
38	4	3	7	1	1	2	3	2	5	–	–	–	2	0	2
39	6	2	8	0	1	1	0	0	0	–	–	–	1	0	1
40	6	6	12	0	2	2	3	2	5	1	–	1	4	3	7
41	8	5	13	0	0	0	2	4	6	0	–	0	1	1	2
42	5	8	13	2	0	2	1	0	1	1	1	2	3	0	3
43	5	4	9	1	1	2	0	0	0	1	1	2	2	1	3
44	4	4	8	–	–	–	0	0	0	1	0	1	1	3	4
45	3	3	6	–	–	–	1	1	2	0	0	0	1	4	5
46	0	0	0	–	–	–	–	–	–	0	0	0	0	6	6
47	1	3	4	–	–	–	–	–	–	0	2	2	1	2	3
48	–	4	4	–	–	–	–	–	–	1	0	1	–	2	2
49	–	–	–	–	–	–	–	–	–	–	2	2	–	2	2
50	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2
51	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
52	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
53	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	53	44	97	6	6	12	19	14	33	5	6	11	19	29	48

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	25			26			27			28			30		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
31	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
32	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
33	–	–	–	–	–	–	2	–	2	–	–	–	–	–	–
34	6	–	6	1	1	2	1	1	2	–	–	–	–	–	–
35	6	1	7	2	0	2	1	0	1	–	–	–	–	–	–
36	7	3	10	2	0	2	4	1	5	–	–	–	–	1	1
37	10	6	16	5	3	8	4	2	6	–	–	–	1	0	1
38	9	10	19	8	3	11	4	2	6	–	–	–	0	1	1
39	20	11	31	6	5	11	2	5	7	–	–	–	1	0	1
40	12	10	22	4	4	8	5	0	5	–	–	–	2	0	2
41	4	6	10	3	0	3	3	1	4	1	–	1	2	2	4
42	13	3	16	5	1	6	2	1	3	2	–	2	1	0	1
43	6	2	8	2	1	3	5	0	5	–	–	0	1	3	4
44	5	7	12	1	2	3	2	1	3	–	–	0	1	1	2
45	2	7	9	1	1	2	1	1	2	–	–	0	–	1	1
46	0	3	3	–	1	1	–	1	1	–	1	1	–	2	2
47	2	1	3	–	0	0	–	3	3	–	–	–	–	5	5
48	–	0	0	–	2	2	–	0	0	–	–	–	–	–	–
49	–	1	1	–	–	–	–	0	0	–	–	–	–	–	–
50	–	–	–	–	–	–	–	0	0	–	–	–	–	–	–
51	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–
52	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
53	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	102	71	173	40	24	64	36	20	56	3	1	4	9	16	25

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	31			32			33			34			36		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–
31	–	–	–	–	–	–	–	1	1	0	–	0	–	–	–
32	–	–	–	–	–	–	–	0	0	0	–	0	–	–	–
33	–	–	–	1	–	1	–	1	1	0	–	0	–	–	–
34	–	–	–	2	1	3	2	0	2	0	–	0	–	–	–
35	–	–	–	8	1	9	5	1	6	0	–	0	1	–	1
36	1	–	1	14	4	18	8	1	9	1	–	1	–	–	0
37	0	–	0	24	7	31	19	11	30	1	–	1	–	–	0
38	2	1	3	27	13	40	18	14	32	0	–	0	–	–	0
39	3	3	6	22	27	49	18	8	26	0	–	0	–	–	0
40	3	1	4	11	27	38	10	11	21	0	–	0	–	–	0
41	1	3	4	10	19	29	9	9	18	0	–	0	–	–	0
42	2	1	3	10	9	19	7	6	13	0	–	0	–	–	0
43	0	1	1	4	8	12	7	3	10	0	–	0	–	–	0
44	0	0	0	2	11	13	5	6	11	1	–	1	–	–	0
45	1	1	2	3	3	6	3	5	8	–	–	0	–	–	0
46	–	0	0	–	2	2	2	2	4	–	–	0	–	1	1
47	–	0	0	–	3	3	2	5	7	–	1	1	–	–	–
48	–	1	1	–	1	1	–	2	2	–	–	–	–	–	–
49	–	0	0	–	–	–	–	1	1	–	–	–	–	–	–
50	–	0	0	–	–	–	–	0	0	–	–	–	–	–	–
51	–	0	0	–	–	–	–	1	1	–	–	–	–	–	–
52	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
53	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	13	13	26	138	136	274	115	88	203	4	1	5	1	1	2

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	38			39			40			41			42		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–
25	–	–	–	–	–	–	–	–	–	–	–	0	–	–	–
26	–	–	–	–	–	–	–	–	–	–	–	0	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	0	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	0	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	0	–	–	–
30	–	–	–	–	–	–	–	–	–	–	–	0	–	–	–
31	1	–	1	–	–	–	–	–	–	–	–	0	–	–	–
32	0	1	1	–	–	–	–	–	–	–	–	0	–	–	–
33	0	0	0	–	–	–	–	–	–	–	–	0	–	–	–
34	0	1	1	–	–	–	–	–	–	–	–	0	–	–	–
35	0	0	0	–	–	–	–	–	–	–	–	0	–	–	–
36	1	0	1	–	–	–	–	–	–	–	1	1	–	–	–
37	1	2	3	–	–	–	–	–	–	–	0	0	–	–	–
38	5	2	7	–	–	–	–	–	–	–	1	1	–	–	–
39	4	2	6	–	–	–	–	–	–	–	0	0	–	–	1
40	2	7	9	–	–	–	–	–	–	–	0	0	–	–	0
41	1	3	4	–	–	–	–	–	–	–	2	2	–	–	0
42	2	2	4	–	–	–	–	–	–	–	–	0	–	–	0
43	5	1	6	–	–	–	–	–	–	–	–	0	–	–	1
44	4	1	5	–	–	1	–	–	–	–	–	0	–	–	0
45	2	1	3	–	–	–	–	–	–	–	–	0	–	–	0
46	–	0	0	–	–	–	1	1	2	1	–	1	–	–	1
47	–	2	2	–	–	–	–	–	–	–	–	–	–	–	–
48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
49	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
51	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
52	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
53	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
61	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	28	25	53	–	–	1	1	1	2	1	4	6	–	–	3

Appendix Table 10 (cont'd)

Fork length (cm)	Set number														
	43			44			46			47			48		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
30	-	-	1	-	-	-	-	-	-	1	-	1	3	1	4
31	-	-	0	-	-	-	-	-	-	1	1	2	3	3	6
32	-	-	0	-	-	-	-	-	-	2	-	2	5	1	6
33	-	-	0	-	-	-	-	-	-	9	2	11	13	5	18
34	-	-	0	-	-	-	-	-	-	16	8	24	18	2	20
35	-	-	0	-	-	-	-	-	-	16	7	23	24	4	28
36	-	-	0	-	-	2	-	-	-	16	12	28	27	8	35
37	-	-	0	-	-	1	-	-	-	36	15	51	31	11	42
38	-	-	2	-	-	0	-	-	-	25	19	44	21	9	30
39	-	-	-	-	-	0	-	-	1	15	14	29	10	16	26
40	-	-	-	-	-	1	-	-	0	4	9	13	10	9	19
41	-	-	-	-	-	1	-	-	2	11	11	22	3	4	7
42	-	-	-	-	-	-	-	-	-	4	8	12	2	4	6
43	-	-	-	-	-	-	-	-	-	7	2	9	2	3	5
44	-	-	-	-	-	-	-	-	-	3	1	4	1	3	4
45	-	-	-	-	-	-	-	-	-	0	0	0	3	2	5
46	-	-	-	-	-	-	-	-	-	2	0	2	0	4	4
47	-	-	-	-	-	-	-	-	-	0	1	1	1	-	1
48	-	-	-	-	-	-	-	-	-	1	1	2	-	-	-
49	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
50	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	3	-	-	5	-	-	3	169	112	281	178	89	267

Appendix Table 10 (cont'd)

Fork length (cm)	Set number 49			50			51			52			Total		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
17	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
24	-	-	0	-	-	-	-	-	-	-	-	-	-	-	1
25	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0
26	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0
27	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0
28	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0
29	-	-	0	-	-	-	-	-	-	-	-	-	1	-	1
30	-	-	0	-	-	-	-	-	-	-	-	-	5	2	8
31	-	-	0	-	-	-	-	-	-	-	-	-	6	5	11
32	-	-	0	-	-	-	2	1	3	-	-	-	13	5	19
33	-	-	0	-	1	1	2	0	2	-	-	-	30	10	45
34	-	-	1	2	0	2	4	2	6	-	-	-	68	20	93
35	-	-	0	1	1	2	19	2	21	-	-	-	115	24	145
36	-	-	0	5	2	7	34	10	44	2	-	2	181	53	252
37	-	-	0	4	1	5	27	16	43	2	-	2	253	96	372
38	-	-	0	4	3	7	24	13	37	0	-	0	231	135	399
39	-	-	1	3	5	8	20	9	29	0	-	0	211	159	409
40	-	-	-	5	5	10	6	13	19	1	-	1	148	172	350
41	-	-	-	1	3	4	6	7	13	0	-	0	11	121	249
42	-	-	-	3	4	7	6	2	8	0	-	0	106	89	210
43	-	-	-	0	0	0	0	1	1	1	-	1	98	60	168
44	-	-	-	3	1	4	1	4	5	1	-	1	64	94	164
45	-	-	-	-	0	0	-	1	1	-	-	-	46	71	121
46	-	-	-	-	1	1	-	1	1	-	-	-	8	61	71
47	-	-	-	-	0	0	-	0	0	-	-	-	11	62	74
48	-	-	-	-	0	0	-	1	1	-	-	-	4	35	39
49	-	-	-	-	0	0	-	1	1	-	-	-	1	16	17
50	-	-	-	-	0	0	-	-	-	-	-	-	0	8	8
51	-	-	-	-	0	0	-	-	-	-	-	-	0	4	4
52	-	-	-	-	0	0	-	-	-	-	-	-	0	2	2
53	-	-	-	-	0	0	-	-	-	-	-	-	1	0	1
61	-	-	-	-	1	1	-	-	-	-	-	-	-	1	1
Total	-	-	3	31	28	59	151	84	235	7	-	7	1,712	1,305	3,235[a]

[a]Total includes 218 unsexed fish.

Appendix Table 11. Length frequency of dogfish. G.B. REED, May 25-June 18, 1976.

Total length (cm)	Set number														
	1			2			3			4			5		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	2	-	2	-	-	-	-	-	-
33	-	-	-	-	3	3	1	1	2	-	-	-	-	-	-
34	-	-	-	1	2	3	0	0	0	-	2	2	-	-	-
35	-	-	-	0	2	2	2	1	3	-	1	1	-	-	-
36	-	-	-	0	1	1	0	1	1	1	0	1	-	-	-
37	-	-	-	1	0	1	0	0	0	3	0	3	-	-	-
38	-	-	-	1	2	3	0	0	0	1	1	2	-	-	-
39	2	-	2	2	1	3	0	0	0	0	0	0	-	-	-
40	0	-	0	0	1	1	1	0	1	0	0	0	-	-	-
41	0	-	0	2	1	3	1	0	1	1	0	1	-	-	-
42	0	-	0	1	0	1	3	0	3	0	0	0	-	-	-
43	0	-	0	0	0	0	1	0	1	0	0	0	-	-	-
44	0	-	0	0	0	0	1	1	2	0	0	0	-	-	-
45	0	-	0	1	0	1	1	0	1	1	0	1	-	-	-
46	0	-	0	0	0	0	0	0	0	0	0	0	-	-	-
47	0	-	0	0	0	0	0	0	0	0	0	0	-	-	-
48	0	-	0	0	0	0	1	0	1	0	0	0	-	-	-
49	0	-	0	0	1	1	0	0	0	0	0	0	-	-	-
50	0	-	0	0	0	0	1	0	1	1	0	1	-	-	-
51	0	-	0	0	0	0	0	1	1	-	0	0	-	-	-
52	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
53	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
54	0	-	0	0	0	0	0	1	1	-	0	0	-	-	-
55	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
56	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
57	0	-	0	0	0	0	1	0	1	-	0	0	-	-	-
58	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
59	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
60	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
61	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
62	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
63	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
64	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
65	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
66	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
67	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
68	0	-	0	0	0	0	0	0	0	-	0	0	-	-	-
69	0	-	0	0	0	0	1	0	1	-	0	0	-	-	-
70	0	-	0	0	0	0	-	0	0	-	0	0	-	-	-
71	0	-	0	0	0	0	-	0	0	-	0	0	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	1			2			3			4			5		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	0	-	0	0	0	0	-	0	0	-	0	0	-	-	-
73	0	-	0	0	0	0	-	0	0	-	0	0	-	-	-
74	0	-	0	0	0	0	-	1	1	-	0	0	-	-	-
75	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
76	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
77	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
78	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
79	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
80	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
81	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
82	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
83	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
84	0	-	0	0	0	0	-	-	-	-	0	0	-	-	-
85	0	-	0	0	0	0	-	-	-	-	0	0	1	-	1
86	1	-	1	0	0	0	-	-	-	-	0	0	0	-	0
87	0	-	0	0	0	0	-	-	-	-	0	0	0	-	0
88	0	-	0	0	3	3	-	-	-	-	1	1	0	-	0
89	0	-	0	0	0	0	-	-	-	-	0	0	0	-	0
90	1	-	1	0	0	0	-	-	-	-	1	1	0	-	0
91	1	1	2	0	1	1	-	-	-	-	0	0	0	1	1
92	-	1	1	1	3	4	-	-	-	-	0	0	0	0	0
93	-	0	0	-	0	0	-	-	-	-	0	0	0	0	0
94	-	0	0	-	1	1	-	-	-	-	0	0	0	0	0
95	-	0	0	-	1	1	-	-	-	-	0	0	0	0	0
96	-	0	0	-	1	1	-	-	-	-	0	0	0	0	0
97	-	0	0	-	0	0	-	-	-	-	0	0	0	0	0
98	-	0	0	-	0	0	-	-	-	-	0	0	0	0	0
99	-	1	1	-	0	0	-	-	-	-	0	0	1	0	1
100	-	-	-	-	1	1	-	-	-	-	1	1	-	0	0
101	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
102	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
103	-	-	-	-	-	-	-	-	-	-	0	0	-	1	1
104	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
105	-	-	-	-	-	-	-	-	-	-	1	1	-	1	1
106	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
107	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
108	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
109	-	-	-	-	-	-	-	-	-	-	0	0	-	0	0
110	-	-	-	-	-	-	-	-	-	-	0	0	-	1	1
118	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
123	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Total	5	3	8	10	25	35	17	7	24	8	9	17	2	4	6

Appendix Table 11 (cont'd)

Total length (cm)	Set number 6			7			8			9			10		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	1	2	3	-	2	2
28	-	-	-	-	-	-	-	-	-	3	2	5	-	1	1
29	-	-	-	-	-	-	-	-	-	1	5	6	-	2	2
30	-	-	-	-	-	-	-	-	-	0	2	2	1	2	3
31	-	-	-	-	-	-	-	-	-	1	0	1	0	0	0
32	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0
33	-	-	-	-	-	-	-	2	2	0	0	0	0	0	0
34	-	-	-	-	-	-	-	1	1	0	0	0	0	1	1
35	-	-	-	-	-	-	2	0	2	0	0	0	1	0	1
36	-	-	-	-	-	-	1	0	1	0	0	0	0	1	1
37	-	-	-	-	1	1	1	1	2	2	1	3	0	0	0
38	-	-	-	-	0	0	0	0	0	5	0	6	1	1	2
39	-	-	-	-	0	0	0	0	0	0	1	1	1	0	1
40	-	-	-	-	0	0	2	0	2	2	1	3	1	0	1
41	-	-	-	-	0	0	0	0	0	5	5	10	3	3	6
42	-	-	-	-	0	0	0	0	0	6	5	11	4	0	4
43	-	-	-	-	0	0	0	0	0	3	5	8	1	1	2
44	-	-	-	-	0	0	0	0	0	3	3	6	4	3	7
45	-	-	-	-	1	1	0	0	0	4	2	6	1	4	5
46	-	-	-	-	0	0	0	0	0	5	6	11	4	1	5
47	-	-	-	-	0	0	0	0	0	5	1	6	2	0	2
48	-	-	-	-	0	0	0	0	0	2	0	2	2	2	4
49	-	-	-	-	0	0	0	0	0	2	1	3	2	0	2
50	-	-	-	-	0	0	0	0	0	3	1	4	0	0	0
51	-	-	-	-	1	1	0	0	0	1	0	1	1	0	1
52	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0
53	-	-	-	-	0	0	0	0	0	3	0	3	0	1	1
54	-	-	-	-	0	0	0	0	0	1	1	2	0	0	0
55	-	-	-	-	0	0	0	0	0	0	-	0	0	1	1
56	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0
57	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0
58	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0
59	-	-	-	-	0	0	0	0	0	0	-	0	0	0	0
60	-	-	-	-	0	0	0	0	0	0	-	0	1	0	1
61	-	-	-	-	0	0	0	0	0	0	-	0	-	1	1
62	-	-	-	-	0	0	0	0	0	0	-	0	-	0	0
63	-	-	-	-	0	0	0	0	0	0	-	0	-	0	0
64	-	-	-	-	0	0	0	0	0	0	-	0	-	0	0
65	-	-	-	-	0	0	0	0	0	0	-	0	-	0	0
66	-	-	-	-	0	0	0	0	0	0	-	0	-	0	0
67	-	-	-	-	0	0	0	0	0	0	-	0	-	0	0
68	-	-	-	-	0	0	0	0	0	0	-	0	-	1	1
69	-	-	-	-	1	1	0	0	0	0	-	0	-	-	-
70	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
71	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	6			7			8			9			10		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
73	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
74	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
75	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
76	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
77	-	-	-	-	-	0	0	0	0	0	-	0	-	-	-
78	-	1	1	-	-	0	0	0	0	0	-	0	-	-	-
79	-	0	0	1	-	1	0	0	0	0	-	0	-	-	-
80	-	0	0	-	-	-	0	0	0	0	-	0	-	-	-
81	-	0	0	-	-	-	0	0	0	0	-	0	-	-	-
82	-	0	0	-	-	-	1	0	1	0	-	0	-	-	-
83	-	0	0	-	-	-	-	0	0	0	-	0	-	-	-
84	-	0	0	-	-	-	-	0	0	0	-	0	-	-	-
85	-	0	0	-	-	-	-	0	0	0	-	0	-	-	-
86	-	0	0	-	-	-	-	0	0	0	-	0	-	-	-
87	-	0	0	-	-	-	-	1	1	0	-	0	-	-	-
88	-	0	0	-	-	-	-	0	0	0	-	0	-	-	-
89	-	1	1	-	-	-	-	0	0	1	-	1	-	-	-
90	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
91	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
92	1	1	2	-	-	-	-	0	0	-	-	-	-	-	-
93	1	0	1	-	-	-	-	0	0	-	-	-	-	-	-
94	-	1	1	-	-	-	-	0	0	-	-	-	-	-	-
95	-	0	0	-	-	-	-	1	1	-	-	-	-	-	-
96	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
97	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
98	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
99	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
100	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
101	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	7	9	1	4	5	7	6	13	59	44	103	30	28	58

Appendix Table 11 (cont'd)

Total length (cm)	Set number 11			12			13			14			15		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
28	-	-	-	1	2	3	1	-	1	-	-	-	-	-	-
29	-	-	-	3	2	5	0	2	2	-	-	-	-	-	-
30	-	-	-	0	0	0	1	1	2	-	-	-	-	-	-
31	-	-	-	0	0	0	0	0	0	-	-	-	-	-	-
32	-	-	-	0	0	0	0	1	1	-	-	-	-	-	-
33	-	1	1	1	0	1	0	1	1	-	-	-	-	-	-
34	-	0	0	0	0	0	0	0	0	-	-	-	-	-	-
35	-	0	0	1	0	1	0	0	0	-	-	-	-	-	-
36	-	1	1	0	0	0	0	1	1	-	-	-	-	-	-
37	-	0	0	1	0	1	0	-	0	-	-	-	1	-	1
38	-	0	0	0	0	0	0	-	0	-	-	-	0	-	0
39	-	2	2	0	1	1	0	-	0	-	-	-	0	1	1
40	-	0	0	0	0	0	0	-	0	-	-	-	1	-	1
41	1	4	5	0	0	0	0	-	0	-	-	-	0	-	0
42	1	2	3	0	0	0	1	-	1	-	1	1	0	-	0
43	0	1	1	0	2	2	-	-	-	2	0	2	0	-	0
44	3	2	5	1	1	2	-	-	-	0	0	0	0	-	0
45	1	0	1	0	-	0	-	-	-	0	0	0	0	-	0
46	1	3	4	0	-	0	-	-	-	0	1	1	0	-	0
47	5	1	6	0	-	0	-	-	-	0	0	0	1	-	1
48	0	1	1	0	-	0	-	-	-	0	1	1	0	-	0
49	2	2	4	0	-	0	-	-	-	0	0	0	0	-	0
50	1	2	3	0	-	0	-	-	-	0	0	0	0	-	0
51	2	2	4	0	-	0	-	-	-	0	0	0	1	-	1
52	0	0	0	0	-	0	-	-	-	1	0	1	-	-	-
53	0	0	0	0	-	0	-	-	-	-	0	0	-	-	-
54	1	0	1	0	-	0	-	-	-	-	0	0	-	-	-
55	0	0	0	0	-	0	-	-	-	-	0	0	-	-	-
56	0	0	0	0	-	0	-	-	-	-	0	0	-	-	-
57	0	0	0	0	-	0	-	-	-	-	0	0	-	-	-
58	0	1	1	0	-	0	-	-	-	-	0	0	-	-	-
59	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
60	1	-	1	0	-	0	-	-	-	-	0	0	-	-	-
61	1	-	1	0	-	0	-	-	-	-	0	0	-	-	-
62	1	-	1	0	-	0	-	-	-	-	0	0	-	-	-
63	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
64	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
65	1	-	1	0	-	0	-	-	-	-	0	0	-	-	-
66	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
67	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
68	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
69	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
70	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
71	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	11			12			13			14			15		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
73	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
74	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
75	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
76	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
77	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
78	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
79	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
80	0	-	0	0	-	0	-	-	-	-	0	0	-	-	-
81	0	-	0	1	-	1	-	-	-	-	0	0	-	-	-
82	1	-	1	-	-	-	-	-	-	-	0	0	-	-	-
83	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
84	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
85	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
86	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
87	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
88	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
89	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
90	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
91	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
92	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
93	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
94	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
95	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
96	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
97	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
98	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
99	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
100	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
101	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
102	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
103	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
104	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
105	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
106	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
107	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	23	25	48	10	8	18	3	6	9	3	4	7	4	1	5

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	16			17			18			19			20		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
29	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
31	–	–	–	–	–	–	–	1	1	–	1	1	–	–	–
32	–	–	–	1	–	1	1	0	1	–	2	2	–	–	–
33	–	–	–	0	–	0	1	0	1	2	1	3	–	–	–
34	1	–	1	0	–	0	0	1	1	1	1	2	–	–	–
35	0	–	0	1	–	1	0	0	0	1	1	2	–	–	–
36	0	–	0	0	–	0	0	0	0	0	0	0	–	–	–
37	0	–	0	0	–	0	0	0	0	0	0	0	–	–	–
38	0	–	0	0	–	0	0	0	0	1	0	1	1	1	2
39	1	–	1	0	–	0	0	0	0	0	0	0	0	–	0
40	0	1	1	0	–	0	1	0	1	0	0	0	0	–	0
41	0	0	0	0	–	0	1	0	1	0	0	0	0	–	0
42	0	0	0	0	1	1	0	0	0	0	0	0	0	–	0
43	0	1	1	0	1	1	0	0	0	1	0	1	0	–	0
44	1	1	2	0	1	1	0	0	0	0	0	0	0	–	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	–	0
46	0	0	0	0	2	2	0	0	0	0	0	0	0	–	0
47	1	1	2	2	1	3	0	0	0	0	0	0	0	–	0
48	0	0	0	1	1	2	0	0	0	0	0	0	0	–	0
49	0	0	0	1	1	2	0	0	0	0	0	0	0	–	0
50	0	0	0	1	1	2	0	0	0	0	0	0	0	–	0
51	0	2	2	2	0	2	0	0	0	0	0	0	0	–	0
52	0	–	0	0	1	1	0	0	0	0	0	0	0	–	0
53	0	–	0	0	–	0	0	0	0	0	0	0	0	–	0
54	0	–	0	1	–	1	0	0	0	0	0	0	0	–	0
55	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
56	0	–	0	–	–	–	0	0	0	1	0	1	0	–	0
57	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
58	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
59	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
60	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
61	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
62	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
63	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
64	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
65	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
66	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
67	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
68	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
69	0	–	0	–	–	–	0	0	0	1	0	1	0	–	0
70	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
71	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	16			17			18			19			20		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
73	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
74	0	–	0	–	–	–	0	0	0	0	0	0	0	–	0
75	0	–	0	–	–	–	0	0	0	0	0	0	1	–	1
76	0	–	0	–	–	–	1	0	1	0	0	0	–	–	–
77	1	–	1	–	–	–	–	0	0	0	0	0	–	–	–
78	–	–	–	–	–	–	–	0	0	0	0	0	–	–	–
79	–	–	–	–	–	–	–	0	0	0	0	0	–	–	–
80	–	–	–	–	–	–	–	1	1	0	0	0	–	–	–
81	–	–	–	–	–	–	–	–	–	0	0	0	–	–	–
82	–	–	–	–	–	–	–	–	–	0	0	0	–	–	–
83	–	–	–	–	–	–	–	–	–	0	0	0	–	–	–
84	–	–	–	–	–	–	–	–	–	0	0	0	–	–	–
85	–	–	–	–	–	–	–	–	–	1	0	1	–	–	–
86	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
87	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
88	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
89	–	–	–	–	–	–	–	–	–	–	0	0	–	–	–
90	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–
91	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–
92	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
93	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
94	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
95	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
96	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
97	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
98	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
99	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
100	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
101	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
102	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
103	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
104	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
105	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
106	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
107	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
108	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
109	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
110	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
118	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
123	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	5	6	11	10	10	20	5	3	8	9	8	17	2	1	3

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	21			22			23			24			25		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
28	–	–	–	1	–	1	1	–	1	–	–	–	–	–	–
29	–	–	–	0	–	0	–	–	0	–	–	–	–	–	–
30	–	–	–	0	1	1	–	–	0	–	–	–	–	–	–
31	–	–	–	2	2	4	–	–	0	–	–	–	–	–	–
32	2	–	2	1	0	1	–	–	0	–	–	–	–	–	–
33	0	1	1	0	1	1	–	–	0	–	–	–	–	–	–
34	0	–	0	1	0	1	–	–	0	–	–	–	–	–	–
35	0	–	0	0	1	1	–	–	0	–	–	–	–	–	–
36	0	–	0	0	1	1	–	–	0	–	–	–	–	–	–
37	1	–	1	0	–	0	–	–	0	–	–	–	–	–	–
38	0	–	0	1	–	1	–	–	0	–	–	–	–	–	–
39	0	–	0	–	–	–	–	–	0	–	–	–	–	–	–
40	1	–	1	–	–	–	–	–	0	–	–	–	–	1	1
41	1	–	1	–	–	–	–	–	0	–	–	–	–	1	1
42	–	–	–	–	–	–	–	–	0	–	–	–	–	0	0
43	–	–	–	–	–	–	–	–	0	–	–	–	–	0	0
44	–	–	–	–	–	–	–	–	0	–	–	–	2	2	4
45	–	–	–	–	–	–	–	–	0	–	–	–	1	0	1
46	–	–	–	–	–	–	–	1	1	–	–	–	1	1	2
47	–	–	–	–	–	–	–	0	0	–	–	–	0	0	0
48	–	–	–	–	–	–	–	0	0	–	–	–	0	0	0
49	–	–	–	–	–	–	–	0	0	–	–	–	0	0	0
50	–	–	–	–	–	–	–	0	0	–	–	–	1	2	3
51	–	–	–	–	–	–	–	0	0	–	–	–	–	0	0
52	–	–	–	–	–	–	–	0	0	–	–	–	–	0	0
53	–	–	–	–	–	–	–	0	0	–	1	1	–	0	0
54	–	–	–	–	–	–	–	0	0	–	0	0	–	0	0
55	–	–	–	–	–	–	–	0	0	–	0	0	–	1	1
56	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
57	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
58	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
59	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
60	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
61	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
62	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
63	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
64	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
65	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
66	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
67	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
68	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
69	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
70	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–
71	–	–	–	–	–	–	–	0	0	–	0	0	–	–	–

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	21			22			23			24			25		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
73	-	-	-	-	-	-	-	0	0	-	1	1	-	-	-
74	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
75	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
76	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
77	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
78	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
79	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
80	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
81	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
82	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
83	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
84	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
85	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
86	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
87	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
88	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
89	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
90	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
91	-	-	-	-	-	-	-	0	0	-	1	1	-	-	-
92	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
93	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
94	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
95	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
96	-	-	-	-	-	-	-	0	0	-	0	0	-	-	-
97	-	-	-	-	-	-	-	0	0	-	1	1	-	-	-
98	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
99	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
100	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
101	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	1	6	6	6	12	1	2	3	-	4	4	5	8	13

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	26			27			28			30			31		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	1	1	2	-	-	-	-	-	-	-	-	-
40	-	-	-	1	0	1	-	2	2	-	-	-	-	-	-
41	-	-	-	0	2	2	2	0	2	-	-	-	-	-	-
42	-	-	-	1	0	1	3	1	4	-	1	1	-	-	-
43	-	-	-	0	3	3	2	0	2	1	0	1	-	-	-
44	-	-	-	0	0	0	2	1	3	0	0	0	-	-	-
45	-	-	-	1	0	1	1	2	3	0	1	1	-	-	-
46	1	-	1	0	1	1	0	4	4	0	0	0	-	-	-
47	0	-	0	0	2	2	1	0	1	0	0	0	-	-	-
48	1	-	1	0	1	1	1	0	1	0	0	0	1	-	1
49	-	2	2	1	1	2	0	0	0	0	0	0	-	-	-
50	-	0	0	0	1	1	1	0	1	0	0	0	-	-	-
51	-	0	0	1	0	1	-	0	0	0	1	1	-	-	-
52	-	1	1	-	0	0	-	1	1	0	-	0	-	-	-
53	-	0	0	-	1	1	-	1	1	0	-	0	-	-	-
54	-	0	0	-	0	0	-	0	0	0	-	0	-	-	-
55	-	0	0	-	2	2	-	1	1	0	-	0	-	-	-
56	-	0	0	-	0	0	-	0	0	1	-	1	-	-	-
57	-	0	0	-	0	0	-	0	0	-	-	-	-	-	-
58	-	0	0	-	0	0	-	0	0	-	-	-	-	-	-
59	-	0	0	-	0	0	-	0	0	-	-	-	-	-	-
60	-	0	0	-	0	0	-	1	1	-	-	-	-	-	-
61	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
62	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
63	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
64	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
65	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
66	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
67	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
68	-	0	0	-	0	0	-	-	-	-	-	-	-	-	-
69	-	0	0	-	1	1	-	-	-	-	-	-	-	-	-
70	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
71	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	26			27			28			30			31		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
73	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
74	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
75	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
76	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
77	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
78	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
79	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
80	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
81	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
82	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
83	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
84	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
85	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
86	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
87	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
88	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
89	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
90	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
91	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
92	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
93	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
94	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
95	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
96	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
97	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
98	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
99	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
100	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
101	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
102	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
103	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
104	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
105	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-
106	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	4	6	6	16	22	13	14	27	2	3	5	1	-	1

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	32			33			34			35			36		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	1	1	-	-	-	1	-	1
30	-	-	-	-	-	-	-	0	0	-	-	-	1	-	1
31	-	-	-	-	-	-	1	0	1	2	2	4	1	2	3
32	-	1	1	-	1	1	0	1	1	0	2	2	0	0	0
33	-	0	0	-	0	0	2	1	3	3	0	3	0	3	3
34	-	0	0	-	0	0	1	1	2	1	3	4	2	2	4
35	-	1	1	1	2	3	2	0	2	0	2	2	1	2	3
36	-	0	0	0	0	0	1	3	4	2	2	4	4	2	6
37	-	0	0	0	1	1	0	1	1	0	0	0	8	2	10
38	-	0	0	0	0	0	0	0	0	0	1	1	5	2	7
39	-	1	1	0	0	0	0	0	0	0	0	0	7	9	16
40	-	0	0	0	0	0	0	0	0	0	0	0	15	5	20
41	-	0	0	0	0	0	0	0	0	0	0	0	11	9	20
42	-	0	0	0	0	0	0	0	0	0	0	0	8	10	18
43	-	0	0	0	0	0	0	1	1	0	0	0	10	12	22
44	-	0	0	0	0	0	1	0	1	0	1	1	11	7	18
45	-	0	0	0	0	0	1	0	1	0	-	0	7	7	14
46	-	0	0	0	0	0	0	0	0	0	-	0	10	6	16
47	-	0	0	0	0	0	0	0	0	0	-	0	2	10	12
48	-	0	0	0	0	0	0	0	0	0	-	0	6	3	9
49	-	0	0	0	0	0	1	0	1	0	-	0	7	5	12
50	-	0	0	0	0	0	0	0	0	0	-	0	3	6	9
51	-	0	0	0	0	0	0	1	1	0	-	0	5	4	9
52	-	0	0	0	0	0	0	0	0	0	-	0	2	2	4
53	-	0	0	0	0	0	0	0	0	0	-	0	4	2	6
54	-	0	0	0	0	0	0	0	0	0	-	0	1	3	4
55	-	0	0	0	0	0	0	0	0	0	-	0	1	1	2
56	-	0	0	0	0	0	0	0	0	0	-	0	1	1	2
57	-	0	0	0	0	0	0	0	0	0	-	0	1	0	1
58	-	0	0	0	0	0	0	0	0	0	-	0	0	0	0
59	-	0	0	0	0	0	0	0	0	0	-	0	0	1	1
60	-	0	0	0	0	0	0	0	0	0	-	0	3	0	3
61	-	0	0	0	0	0	0	0	0	0	-	0	-	1	1
62	-	0	0	0	0	0	0	0	0	0	-	0	-	0	0
63	-	0	0	0	0	0	0	0	0	0	-	0	-	0	0
64	-	0	0	0	0	0	0	0	0	0	-	0	-	0	0
65	-	0	0	0	0	0	1	0	1	0	-	0	-	0	0
66	-	0	0	0	0	0	0	0	0	0	-	0	-	0	0
67	1	0	1	0	0	0	0	0	0	0	-	0	-	0	0
68	-	0	0	0	0	0	1	2	3	0	-	0	-	1	1
69	-	0	0	0	0	0	0	1	1	0	-	0	-	-	-
70	-	0	0	0	0	0	1	0	1	0	-	0	-	-	-
71	-	0	0	0	0	0	0	0	0	0	-	0	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	32			33			34			35			36		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	–	0	0	0	0	0	1	0	1	0	–	0	–	–	–
73	–	0	0	0	0	0	0	0	0	0	–	0	–	–	–
74	–	0	0	0	0	0	1	0	1	0	–	0	–	–	–
75	–	0	0	0	0	0	0	0	0	0	–	0	–	–	–
76	–	0	0	0	0	0	0	0	0	0	–	0	–	–	–
77	–	0	0	0	0	0	0	0	0	0	–	0	–	–	–
78	–	0	0	0	0	0	0	0	0	1	–	1	–	–	–
79	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
80	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
81	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
82	–	0	0	0	0	0	1	1	2	–	–	–	–	–	–
83	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
84	–	1	1	0	0	0	0	0	0	–	–	–	–	–	–
85	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
86	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
87	–	0	0	0	0	0	0	0	0	–	–	–	–	–	–
88	–	0	0	1	0	1	0	0	0	–	–	–	–	–	–
89	–	0	0	–	0	0	0	0	0	–	–	–	–	–	–
90	–	0	0	–	2	2	0	0	0	–	–	–	–	–	–
91	–	0	0	–	0	0	0	0	0	–	–	–	–	–	–
92	–	0	0	–	0	0	0	0	0	–	–	–	–	–	–
93	–	0	0	–	0	0	0	0	0	–	–	–	–	–	–
94	–	0	0	–	0	0	1	1	2	–	–	–	–	–	–
95	–	1	1	–	0	0	–	–	–	–	–	–	–	–	–
96	–	0	0	–	1	1	–	–	–	–	–	–	–	–	–
97	–	0	0	–	0	0	–	–	–	–	–	–	–	–	–
98	–	1	1	–	0	0	–	–	–	–	–	–	–	–	–
99	–	0	0	–	1	1	–	–	–	–	–	–	–	–	–
100	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
101	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
102	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
103	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
104	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
105	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
106	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
107	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
108	–	0	0	–	–	–	–	–	–	–	–	–	–	–	–
109	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
110	–	2	2	–	–	–	–	–	–	–	–	–	–	–	–
118	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–
123	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	1	12	13	2	8	10	17	15	32	9	13	22	138	120	258

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	37			38			40			41			42		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
27	1	0	1	-	-	-	-	-	-	-	1	1	1	1	2
28	0	0	0	-	-	-	-	-	-	1	0	1	0	0	0
29	0	0	0	-	-	-	-	-	-	0	1	1	0	0	0
30	1	2	3	-	-	-	-	-	-	0	0	0	0	1	1
31	2	1	3	-	-	-	-	-	-	1	1	2	3	1	4
32	0	0	0	-	-	-	-	-	-	0	0	0	1	3	4
33	0	0	0	-	-	-	-	-	-	0	0	0	1	1	2
34	0	1	1	-	-	-	-	1	1	0	0	0	1	5	6
35	1	0	1	-	-	-	2	0	2	1	0	1	1	3	4
36	0	0	0	-	-	-	1	0	1	0	1	1	3	0	3
37	0	0	0	-	-	-	0	0	0	0	0	0	3	4	7
38	0	0	0	-	-	-	1	4	5	0	0	0	3	2	5
39	0	0	0	-	-	-	0	0	0	0	0	0	1	2	3
40	0	0	0	-	-	-	0	0	0	0	0	0	1	2	3
41	0	0	0	-	-	-	0	0	0	0	0	0	3	1	4
42	0	0	0	-	-	-	2	0	2	0	0	0	3	2	5
43	1	0	1	-	-	-	0	0	0	0	0	0	2	2	4
44	0	0	0	-	-	-	0	0	0	0	0	0	3	0	3
45	0	0	0	-	-	-	0	0	0	0	0	0	1	3	4
46	0	0	0	-	-	-	0	0	0	1	0	1	2	1	3
47	0	0	0	-	-	-	0	0	0	0	0	0	1	1	2
48	0	0	0	-	-	-	0	0	0	0	0	0	3	2	5
49	0	0	0	-	-	-	0	0	0	0	0	0	1	2	3
50	0	0	0	-	-	-	1	0	1	1	0	1	4	3	7
51	0	0	0	-	-	-	-	0	0	0	0	0	2	0	2
52	0	0	0	-	-	-	-	1	1	0	0	0	1	1	2
53	0	0	0	-	-	-	-	0	0	0	1	1	0	3	3
54	0	0	0	-	-	-	-	1	1	0	0	0	1	2	3
55	1	0	1	-	-	-	-	0	0	0	1	1	0	-	0
56	-	0	0	-	-	-	-	0	0	0	-	0	0	-	0
57	-	0	0	-	-	-	-	0	0	0	-	0	1	-	1
58	-	0	0	-	-	-	-	0	0	0	-	0	-	-	-
59	-	0	0	-	-	-	-	0	0	1	-	1	-	-	-
60	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
61	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
62	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
63	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
64	-	0	0	-	-	-	-	1	1	-	-	-	-	-	-
65	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
66	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
67	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
68	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
69	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-
70	-	1	1	-	-	-	-	0	0	-	-	-	-	-	-
71	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	37			38			40			41			42		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
73	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
74	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
75	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
76	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
77	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
78	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
79	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
80	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
81	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
82	-	-	-	1	-	1	-	1	1	-	-	-	-	-	-
83	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-
84	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-
85	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-
86	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-
87	-	-	-	0	-	0	-	-	-	-	-	-	-	-	-
88	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-
89	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
90	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
91	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
92	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
93	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
94	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
95	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-
96	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	7	7	14	4	2	6	7	10	17	6	6	12	47	48	95

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	43			44			45			46			47		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	2	-	2	-	-	-	-	-	-	-	-	-	1	-	1
28	1	-	1	2	1	3	-	-	-	-	-	-	0	-	0
29	3	1	4	0	0	0	-	-	-	1	-	1	2	3	5
30	0	2	2	0	0	0	1	-	1	0	1	1	0	2	2
31	1	2	3	2	1	3	0	-	0	0	1	1	7	1	8
32	0	0	0	1	0	1	0	1	1	1	1	2	2	2	4
33	0	1	1	1	0	1	0	1	1	1	1	2	4	1	5
34	0	2	2	0	2	2	0	0	0	1	2	3	4	3	7
35	1	0	1	0	0	0	0	0	0	-	2	2	1	4	5
36	0	0	0	0	0	0	0	0	0	-	0	0	1	1	2
37	0	1	1	0	0	0	0	0	0	-	0	0	0	1	1
38	1	1	2	0	1	1	0	1	1	-	0	0	1	1	2
39	2	1	3	1	0	1	0	0	0	-	0	0	0	1	1
40	3	0	3	0	1	1	0	0	0	-	1	1	1	0	1
41	1	1	2	0	0	0	0	0	0	-	-	-	0	0	0
42	0	0	0	0	0	0	0	0	0	-	-	-	0	0	0
43	2	1	3	0	0	0	0	0	0	-	-	-	0	0	0
44	3	0	3	0	0	0	0	0	0	-	-	-	0	0	0
45	2	0	2	0	0	0	0	0	0	-	-	-	0	0	0
46	0	0	0	0	0	0	0	0	0	-	-	-	0	0	0
47	1	1	2	0	0	0	0	0	0	-	-	-	0	0	0
48	0	1	1	0	0	0	0	0	0	-	-	-	0	0	0
49	0	1	1	0	0	0	0	0	0	-	-	-	1	0	1
50	0	0	0	0	0	0	0	0	0	-	-	-	0	0	0
51	2	0	2	0	0	0	0	0	0	-	-	-	0	0	0
52	0	0	0	0	0	0	0	0	0	-	-	-	0	0	0
53	0	2	2	0	0	0	0	0	0	-	-	-	0	1	1
54	1	-	1	0	0	0	0	0	0	-	-	-	0	-	0
55	0	-	0	0	0	0	0	0	0	-	-	-	0	-	0
56	0	-	0	0	1	1	0	0	0	-	-	-	0	-	0
57	0	-	0	0	-	0	0	0	0	-	-	-	0	-	0
58	1	-	1	0	-	0	0	0	0	-	-	-	0	-	0
59	0	-	0	0	-	0	1	0	1	-	-	-	0	-	0
60	0	-	0	0	-	0	0	0	0	-	-	-	0	-	0
61	0	-	0	0	-	0	0	0	0	-	-	-	0	-	0
62	0	-	0	0	-	0	0	0	0	-	-	-	0	-	0
63	0	-	0	0	-	0	0	0	0	-	-	-	0	-	0
64	0	-	0	0	-	0	0	0	0	-	-	-	0	-	0
65	0	-	0	0	-	0	0	0	0	-	-	-	1	-	1
66	0	-	0	0	-	0	0	0	0	-	-	-	-	-	-
67	0	-	0	0	-	0	0	0	0	-	-	-	-	-	-
68	0	-	0	0	-	0	0	0	0	-	-	-	-	-	-
69	0	-	0	0	-	0	0	0	0	-	-	-	-	-	-
70	0	-	0	0	-	0	0	0	0	-	-	-	-	-	-
71	0	-	0	0	-	0	0	0	0	-	-	-	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	43			44			45			46			47		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	0	-	0	1	-	1	0	0	0	-	-	-	-	-	-
73	0	-	0	-	-	-	0	0	0	-	-	-	-	-	-
74	0	-	0	-	-	-	0	0	0	-	-	-	-	-	-
75	0	-	0	-	-	-	0	0	0	-	-	-	-	-	-
76	0	-	0	-	-	-	0	0	0	-	-	-	-	-	-
77	0	-	0	-	-	-	0	0	0	-	-	-	-	-	-
78	1	-	1	-	-	-	0	0	0	-	-	-	-	-	-
79	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-
80	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-
81	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-
82	-	-	-	-	-	-	0	0	0	-	-	-	-	-	-
83	-	-	-	-	-	-	0	1	1	-	-	-	-	-	-
84	-	-	-	-	-	-	0	-	0	-	-	-	-	-	-
85	-	-	-	-	-	-	0	-	0	-	-	-	-	-	-
86	-	-	-	-	-	-	0	-	0	-	-	-	-	-	-
87	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
88	-	-	-	-	-	-	0	-	0	-	-	-	-	-	-
89	-	-	-	-	-	-	0	-	0	-	-	-	-	-	-
90	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	23	18	46	8	7	15	4	4	8	4	9	13	26	21	47

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	48			49			50			51			52		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
26	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-
27	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-
28	-	-	-	1	2	3	-	-	-	-	-	-	-	-	-
29	-	2	2	1	0	1	-	-	-	-	-	-	-	-	-
30	1	1	2	0	1	1	-	-	-	-	1	1	-	-	-
31	6	0	6	0	0	0	-	-	-	1	2	3	-	-	-
32	1	1	2	0	0	0	-	-	-	3	3	6	-	-	-
33	0	5	5	0	0	0	-	-	-	6	5	11	-	-	-
34	0	1	1	0	0	0	-	1	1	5	3	8	-	-	-
35	0	1	1	0	0	0	-	0	0	8	6	14	-	-	-
36	0	0	0	0	0	0	-	0	0	4	6	10	-	-	-
37	0	0	0	0	0	0	-	0	0	2	4	6	-	-	-
38	0	0	0	0	0	0	1	0	1	3	1	4	-	-	-
39	0	0	0	0	0	0	1	0	1	2	3	5	-	-	-
40	0	1	1	0	0	0	-	1	1	1	4	5	-	-	-
41	0	0	0	0	0	0	-	0	0	1	2	3	-	-	-
42	0	0	0	0	1	1	-	0	0	0	0	0	-	-	-
43	0	0	0	0	0	0	-	0	0	0	0	0	-	-	-
44	0	0	0	0	0	0	-	0	0	0	1	1	-	-	-
45	0	0	0	1	0	1	-	0	0	1	1	2	-	-	-
46	0	0	0	0	0	0	-	0	0	-	0	0	-	-	-
47	0	0	0	0	0	0	-	0	0	-	0	0	-	-	-
48	0	0	0	1	0	1	-	1	1	-	0	0	-	-	-
49	0	0	0	-	0	0	-	0	0	-	1	1	-	-	-
50	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
51	0	0	0	-	0	0	-	0	0	-	0	0	-	2	2
52	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
53	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
54	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
55	0	0	0	-	0	0	-	0	0	-	1	1	-	0	0
56	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
57	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
58	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
59	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
60	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
61	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
62	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
63	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
64	0	0	0	-	0	0	-	0	0	-	0	0	-	1	1
65	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
66	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
67	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
68	2	0	2	-	0	0	-	0	0	-	0	0	-	-	-
69	1	0	1	-	0	0	-	0	0	-	0	0	-	-	-
70	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
71	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-

Appendix Table 11 (cont'd)

Total length (cm)	Set number														
	48			49			50			51			52		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
72	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
73	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
74	1	0	1	-	0	0	-	0	0	-	0	0	-	-	-
75	0	0	0	-	0	0	-	0	0	-	0	0	-	-	-
76	0	1	1	-	0	0	-	0	0	-	0	0	-	-	-
77	0	-	0	-	0	0	-	0	0	-	0	0	-	-	-
78	0	-	0	-	0	0	-	0	0	-	0	0	-	-	-
79	0	-	0	-	0	0	-	0	0	-	0	0	-	-	-
80	0	-	0	-	0	0	-	0	0	-	0	0	-	-	-
81	0	-	0	-	0	0	-	0	0	-	0	0	-	-	-
82	1	-	1	-	0	0	-	0	0	-	0	0	-	-	-
83	-	-	-	-	0	0	-	0	0	-	0	0	-	-	-
84	-	-	-	-	0	0	-	1	1	-	0	0	-	-	-
85	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-
86	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-
87	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-
88	-	-	-	-	1	1	-	-	-	-	1	1	-	-	-
89	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
90	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
91	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
92	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
93	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
94	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-
95	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	13	13	26	4	8	12	2	4	6	37	47	84	-	3	3

Appendix Table 11 (cont'd)

Total length (cm)	Total		
	M	F	T
26	-	3	3
27	7	8	15
28	12	8	20
29	12	19	31
30	6	17	23
31	30	18	48
32	16	19	35
33	23	30	53
34	19	35	54
35	27	29	56
36	19	21	40
37	23	17	40
38	26	19	45
39	21	25	46
40	31	20	51
41	34	29	63
42	33	24	57
43	26	30	56
44	35	24	59
45	25	21	46
46	25	27	52
47	21	18	39
48	19	13	32
49	18	17	35
50	18	16	34
51	17	14	31
52	4	7	11
53	7	14	21
54	6	8	14
55	3	8	11
56	3	2	5
57	2	0	2
58	1	1	2
59	2	1	3
60	5	1	6
61	1	2	3
62	1	0	1
63	0	0	0
64	0	2	2
65	3	0	3
66	0	0	0
67	1	0	1
68	3	4	7
69	3	2	5
70	1	1	2
71	0	0	0

Appendix Table 11 (cont'd)

Total length (cm)	Total		
	M	F	T
72	2	0	2
73	0	1	1
74	2	1	3
75	1	0	1
76	1	1	2
77	1	0	1
78	2	1	3
79	1	0	1
80	0	2	2
81	1	0	1
82	5	2	7
83	0	1	1
84	1	2	3
85	1	0	1
86	3	0	3
87	1	1	2
88	2	6	8
89	1	1	2
90	2	4	6
91	1	5	6
92	2	5	7
93	1	1	2
94	1	3	4
95	0	4	4
96	0	4	4
97	0	1	1
98	0	1	1
99	1	3	4
100	-	2	2
101	-	4	4
102	-	0	0
103	-	1	1
104	-	0	0
105	-	2	2
106	-	1	1
107	-	2	1
108	-	0	0
109	-	1	1
110	-	3	3
118	-	1	1
123	-	1	1
Total	620	642	1,262

Appendix Table 12. Length frequency of brown cat shark. G.B. REED, May 25-June 18, 1976.

Total length (cm)	Set number														
	3			7			9			10			11		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	-	1	1	-	1	1	-	-	-	1	-	1	-	1	1
45	-	-	0	-	-	0	-	-	-	0	-	0	-	0	0
46	-	-	0	-	-	0	-	-	-	0	1	1	-	-	0
47	-	-	0	-	-	0	-	-	-	0	0	0	-	2	2
48	-	-	0	-	-	0	-	-	-	1	1	2	2	2	4
49	-	-	0	-	-	0	-	-	-	0	0	0	0	0	0
50	-	-	0	1	-	1	-	-	-	2	1	3	0	0	0
51	1	-	1	-	-	-	-	-	-	1	-	1	1	0	1
52	1	-	1	-	-	-	-	-	-	5	-	5	0	0	0
53	-	-	-	-	-	-	-	-	-	3	-	3	1	2	3
54	-	-	-	-	-	-	1	-	1	0	-	0	0	1	1
55	-	-	-	-	-	-	1	-	1	1	-	1	1	-	1
56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	1	3	1	1	2	2	-	2	14	3	17	5	8	13

Appendix Table 12 (cont'd)

Total length (cm)	Set number														
	14			15			16			17			27		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	0	-	1	1	-	-	-	-	-	-	-	-	-
49	-	-	0	-	-	-	-	-	-	-	-	-	-	1	1
50	-	-	0	-	-	-	1	-	1	-	-	-	-	1	1
51	-	-	0	-	-	-	0	-	0	-	-	-	1	-	1
52	-	-	0	-	-	-	1	-	1	1	-	1	4	-	4
53	1	-	1	-	-	-	0	-	0	-	-	0	1	-	1
54	-	-	-	-	-	-	1	-	1	-	1	1	0	-	0
55	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3
56	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
57	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Total	1	1	2	-	1	1	3	-	3	1	1	2	10	3	13

Appendix Table 12 (cont'd)

Total length (cm)	Set number														
	28			34			36			37			39		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
37	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-
38	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
39	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
40	-	-	-	-	-	-	-	0	0	-	-	-	-	-	-
41	-	-	-	-	1	1	-	0	0	-	-	-	-	-	-
42	-	-	-	-	-	0	-	0	0	-	-	-	-	-	-
43	-	-	-	-	-	0	-	0	0	-	-	-	-	-	-
44	-	1	1	-	-	0	-	0	0	-	-	-	1	-	1
45	-	0	0	-	-	0	-	0	0	-	-	-	-	-	-
46	-	1	1	-	-	0	-	1	1	-	-	-	-	-	-
47	-	0	0	-	-	0	-	0	0	-	-	-	-	-	-
48	1	1	2	-	-	0	-	0	0	-	-	-	-	-	-
49	0	-	0	1	-	1	2	2	4	2	-	2	-	-	-
50	1	-	1	0	-	0	1	-	1	-	1	1	-	-	-
51	2	-	2	0	-	0	2	-	2	-	-	-	-	-	-
52	0	-	0	1	-	1	2	-	2	-	-	-	-	-	-
53	0	-	0	0	-	0	1	-	1	-	-	-	-	-	-
54	0	-	0	0	-	0	-	-	-	-	-	-	-	-	-
55	0	-	0	1	-	1	-	-	-	-	-	-	-	-	-
56	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	5	3	8	3	1	4	8	4	12	2	1	3	1	-	1

Appendix Table 12 (cont'd)

Total length (cm)	Set number														
	40			42			43			44			49		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
39	-	-	-	-	1	1	-	-	-	-	0	0	-	-	-
40	-	1	1	-	1	1	-	-	-	-	0	0	-	-	-
41	-	-	0	-	3	3	-	1	1	-	0	0	-	-	-
42	-	-	0	-	0	0	-	1	1	-	1	1	-	-	-
43	-	-	0	-	0	0	-	0	0	-	0	0	-	-	-
44	1	-	1	-	1	1	-	0	0	-	0	0	-	1	1
45	0	-	0	-	0	0	-	1	1	-	1	1	-	0	0
46	0	-	0	1	1	2	-	-	0	-	-	0	-	0	0
47	1	-	1	0	0	0	1	-	1	-	-	0	-	0	0
48	1	-	1	1	1	2	0	-	0	1	-	1	-	0	0
49	0	-	0	0	-	0	0	-	0	0	-	0	-	0	0
50	0	-	0	0	-	0	0	-	0	1	-	1	-	0	0
51	0	-	0	1	-	1	0	-	0	-	-	-	-	0	0
52	0	-	0	-	-	-	2	-	2	-	-	-	-	0	0
53	1	-	1	-	-	-	2	-	2	-	-	-	-	0	0
54	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1
55	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
56	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1
57	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Total	4	1	5	3	8	11	5	3	8	2	3	5	2	2	4

Appendix Table 12 (cont'd)

Total length (cm)	Total		
	M	F	T
37	-	1	1
38	-	1	1
39	-	1	1
40	-	0	0
41	-	3	3
42	-	5	5
43	-	2	2
44	2	4	6
45	1	2	3
46	0	5	5
47	1	3	4
48	6	6	12
49	8	4	12
50	6	3	9
51	9	0	9
52	16	0	16
53	9	2	11
54	6	2	8
55	7	0	7
56	2	0	2
57	1	1	2
Total	74	45	119

Appendix Table 13. Length frequency of other species sampled. G.B. REED, May 25-June 18, 1976.

Fork length (cm)	Set no. by species									
	Sablefish	Chinook salmon				Lingcod	Shortraker rockfish			
	3	4	30	48		6	11		27	
	T	F	M	M	T	F	M	F	T	T
4	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-
31	-	-	1	-	1	-	-	-	-	-
32	-	-	-	-	0	-	-	-	-	-
33	-	-	-	-	0	-	-	-	-	-
34	-	-	-	-	0	-	-	-	-	-
35	-	-	-	-	0	-	-	-	-	-
36	-	-	-	1	1	-	-	-	-	-
40	-	-	-	-	0	-	-	-	-	-
41	-	-	-	-	0	-	-	-	-	-
42	-	-	-	-	0	-	1	-	-	1
43	-	-	-	-	0	-	-	-	-	0
44	-	-	-	-	0	-	-	-	-	0
45	-	-	-	-	0	-	-	-	-	0
46	-	-	-	-	0	-	-	-	-	0
47	-	-	-	-	0	1	-	-	-	1
53	-	-	-	-	0	-	-	-	1	1
54	1	-	-	-	0	-	-	-	0	0
55	0	-	-	-	0	-	-	-	0	0

Appendix Table 13 (cont'd)

Fork length (cm)	Set no. by species									
	Sablefish	Chinook salmon				Lingcod	Shortraker rockfish			
	3	4	30	48		6	11		27	
	T	F	M	M	T	F	M	F	T	T
56	0	-	-	-	0	-	-	-	0	0
59	0	-	-	-	0	-	-	-	0	0
58	1	-	-	-	0	-	-	-	0	0
60	1	-	-	-	0	-	-	0	1	1
63	-	-	-	-	0	-	-	1	-	1
83	-	1	-	-	1	-	-	-	-	-
Total	3	1	1	1	3	1	1	2	1	4

Appendix Table 13 (cont'd)

Fork length (cm)	Set no. by species												
	Pacific tomcod			Pacific cod	Pacific lamprey					Pacific herring			
	17 T	46 T	T	18 F	12 T	25 T	49 T	51 T	T	36 T	37 T	47 T	T
4	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	1	1	-	-	-	-
16	-	-	-	-	-	-	-	0	0	-	2	1	3
17	1	-	1	-	-	-	-	0	0	-	1	0	1
18	-	-	0	-	-	-	-	0	0	-	2	3	5
19	-	-	0	-	-	-	-	0	0	-	1	0	1
20	-	-	0	-	-	-	-	1	1	-	0	1	1
21	-	-	0	-	-	-	-	0	0	-	0	1	1
22	-	-	0	-	-	-	-	1	1	-	0	1	1
23	-	-	0	-	-	-	-	-	0	-	2	1	3
24	-	1	1	-	-	-	-	-	0	1	2	0	3
25	-	0	0	-	-	-	-	-	0	-	1	0	1
26	-	0	0	-	-	-	-	-	0	-	0	2	2
27	-	0	0	-	-	-	-	-	0	-	2	0	2
28	-	0	0	-	-	-	-	-	0	-	3	0	3
29	-	0	0	-	-	-	-	-	0	-	-	1	1
30	-	0	0	-	1	1	-	-	2	-	-	-	-
31	-	0	0	-	-	-	-	-	0	-	-	-	-
32	-	1	1	-	-	-	-	-	0	-	-	-	-
33	-	-	-	-	-	-	1	-	1	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix Table 13 (cont'd)

Fork length (cm)	Set no. by species: Pacific tomcod 17 T	Pacific tomcod 46 T	Pacific tomcod T	Pacific cod 18 F	Pacific lamprey 12 T	Pacific lamprey 25 T	Pacific lamprey 49 T	Pacific lamprey 51 T	Pacific lamprey T	Pacific herring 36 T	Pacific herring 37 T	Pacific herring 47 T	Pacific herring T
56	-	-	-	1	-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	-	-	-	-	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	2	3	1	1	1	1	3	6	1	16	12	29

Appendix Table 13 (cont'd)

Fork length (cm)	Set no. by species					
	Blackfin sculpin 40/T	Pallid eelpout 40/T	Turbot 42/T	English sole 46/T	Tadpole snailfish 40/T	Prickly snailfish 40/T
4	-	-	-	-	2	-
5	-	-	-	-	-	1
6	2	-	-	-	-	-
7	0	-	-	-	-	-
8	2	1	-	-	-	-
9	-	1	-	-	-	-
15	-	-	-	-	-	-
16	-	-	-	-	-	-
17	-	-	-	-	-	-
18	-	-	-	-	-	-
19	-	-	-	-	-	-
20	-	-	-	-	-	-
21	-	-	-	-	-	-
22	-	-	-	-	-	-
23	-	-	-	-	-	-
24	-	-	-	-	-	-
25	-	-	-	-	-	-
26	-	-	-	-	-	-
27	-	-	-	-	-	-
28	-	-	-	-	-	-
29	-	-	-	-	-	-
30	-	-	-	-	-	-
31	-	-	-	1	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	-	-	-	-	-	-
36	-	-	-	-	-	-
40	-	-	-	-	-	-
41	-	-	-	-	-	-
42	-	-	-	-	-	-
43	-	-	-	-	-	-
44	-	-	-	-	-	-
45	-	-	1	-	-	-
46	-	-	-	-	-	-
47	-	-	-	-	-	-
53	-	-	-	-	-	-
54	-	-	-	-	-	-
55	-	-	-	-	-	-

Appendix Table 13 (cont'd)

Fork length (cm)	Set no. by species					
	Blackfin sculpin 40 T	Pallid eelpout 40 T	Turbot 42 T	English sole 46 T	Tadpole snailfish 40 T	Prickly snailfish 40 T
56	-	-	-	-	-	-
57	-	-	-	-	-	-
58	-	-	-	-	-	-
60	-	-	-	-	-	-
63	-	-	-	-	-	-
83	-	-	-	-	-	-
Total	4	2	1	1	2	1